



DNIAL BUILDINGS, 44A CANNON STREET, LONDON, E.C.

Published on the 15th of each Month.

WENTIETH YEAR OF PUBLICATION.

Subscription. 10s. per year, payable in advance;
commencing from any date.

Post free to every country in the world.

Single Copies, 1s. each.

Copy of THE CHEMISTS' AND DRUGGISTS' DIARY, published
ally, is presented to every subscriber. Price to non-subscribers, 2s.

Advertisements, Remittances, Subscriptions, Orders for Copies, and all com-
munications must be addressed to "THE PUBLISHER OF THE CHEMIST AND
DRUGGIST."

Orders and Post-office Orders to be made payable to *Eduard Halse* and
ed *Martin & Co.*

One is authorised to collect money without production of the Pro-
prietors' lithographed form of receipt.

SCALE OF CHARGES FOR ADVERTISEMENTS.

One Page, 5l.; Half Page, 2l. 15s.; Quarter Page, 1l. 12s. Special Rates
for Wrappers and the pages preceding and following literary matter. The
Scale of Charges will be subject to a discount of 10 per cent. upon
one, and 20 per cent. upon Thirteen insertions, prompt quarterly pay-
ments; the Thirteenth appearing in the DIARY AND TEXT-BOOK. Seven
and under, 4s. 6d.; every additional Line, 6d. Advertisements of
Persons Wanting Situations (not exceeding 12 words) inserted at a
special charge of 1s. each. For such advertisements when replies are to be
sent to this office an extra charge of 6d. must be paid to cover cost of
transmission.

Advertisements intended for insertion in the current Month must
be sent to the PUBLISHER OF THE CHEMIST AND DRUGGIST on or before
the 12th, except Employers' and Assistants' Advertisements, which can be
sent up to 10 A.M. on the morning previous to publication.



On Friday next, May 17, we shall forward to all our
English subscribers a supplementary issue of THE CHEMIST AND
DRUGGIST, giving full reports of the meetings of the Chemists'
Druggists' Trade Association, and of the Pharmaceutical
Society, with the result of the voting for the Pharmaceutical
Council. This supplement will be given to our foreign sub-
scribers with our next monthly issue.

According to the report of the Chemists' and Druggists'
Trade Association, the roll of that Society now numbers 3,940
members. The law costs of the year, which include the trial
in the Apothecaries' Society in the Court of Exchequer,
amount to 370l. The Association has spent 100l. more than its
income, thus reducing its already too slender means.

The Pharmaceutical Council's report records only a meagre
amount of work accomplished. The Council appears to have
been covered during the past year that the Society of Apothe-
caries has commenced to interfere with chemists for counter-
feiting; but it congratulates its members on the "re-assuring
and satisfactory" result of the correspondence between the soli-
taries of the two societies. The Society has saved upwards of
100l. during the year.

Mr Dominic Corrigan has resigned his position as President
of the Pharmaceutical Society of Ireland, and, although an

attempt was made to induce him to alter his decision, it was un-
successful. Dr. Aquilla Smith, the present Vice-President,
having declined promotion to the Presidency, the choice of the
Council fell on Professor C. R. C. Tichborne. As this gentle-
man unites in himself an interest both in trade and science, and
represents the pharmaceutical as well as the apothecarial
element, it would seem as if a better choice could hardly have
been made.

We intend to make another application to the Pharmaceutical
Council for the admission of our reporters to its monthly meet-
ings. This seems to us to be a matter which concerns the
Society more than it affects ourselves, but as it is nine years
since we were last refused, and as pharmaceutical opinion has
travelled fast since then, we very willingly make the applica-
tion at the express wish of many eminent pharmaceutical
chemists.

Some sensation has been started in certain papers by the
alleged discovery of an adulteration of 25 per cent. of arsenic
in violet powder purchased in London. Our inquiries lead us to
conclude that none of this stupidly-adulterated powder has
passed to the public through chemists and druggists. It seems
to have been the production of a small grocer in the East of
London. The facts are now under the consideration of the
Local Government Board, who will, it is to be hoped, institute
a prosecution if the statements made are accurate.

The Worcestershire analyst has had to confess to a blunder
in a milk analysis in which proceedings had been taken. The
prosecution was defeated, and the analyst then discovered that
a relative, who had assisted him in taking some weights, had
led him astray. Mr. Jarman, of Huddersfield, has also dis-
tinguished himself as a mathematician by making $\frac{23}{100}$ of a
grain per gallon equal to $\frac{1}{300}$ of a grain per half-pint. Ordinary
people would make it equal to $\frac{1}{70}$ of a grain.

The Paris Exhibition contains a very fair representation of
British pharmacy. Although there is nothing striking in the
English display in this class, what there is, is good and taste-
fully set out. America makes a very prominent feature of
pharmaceutical products; but up to the date of writing the
report published in the present number the exhibits were so
backward that there was no chance of making a general or full
report.

Mr. A. H. Mason, of Liverpool, has read a paper on
"Chloroform" before the Chemists' Association of that town,
with the object of showing that in all probability the chloro-
form prepared from methylated spirit is no less pure than that
obtained from ethylic alcohol, assuming, of course, that an
equal amount of care has been bestowed on the processes. The
subject is worth the consideration of medical men and practical
pharmacists.

A Portuguese Company has been formed at Lisbon with a
capital of 178,000l., and with the intention of cultivating opium
in Africa. The Portuguese Government has conceded special
tariff advantages, and the prospects are good.

The failure of Messrs. Close & Legge, wholesale and export
druggists, with liabilities amounting, it is stated, to 10,000l.,
is reported this month.

Visitors to the Royal Academy's Exhibition this year will be
pleased to find a portrait of Mr. Peter Squire, the eminent
pharmacist, on its walls. The portrait is painted by Mr.
Cyrus Johnson.

The proportion of pharmacists to the inhabitants in the Ger-
man Empire is reported by the *Pharmaceutische Zeitung* to be,
as nearly as possible, 1 to 10,000. Our German brothers must
have a happy time of it.

CORNER FOR STUDENTS.

CONDUCTED BY RICHARD J. MOSS, F.C.S.

THE subject of the next exercise in Qualitative Analysis will be one of the chemical compounds of the Pharmacopœia. The substance is to be submitted to a systematic qualitative analysis, its composition and name ascertained, and a report made as to its purity.

Students who wish to compete should send us their names and addresses before the 20th inst. Samples of the substance for analysis will be forwarded on the 25th inst.

Students' reports will be received up to June 15.

ANSWERS.

Antimonium Tartaratum B.P. was the substance distributed for analysis in March. It was unadulterated and the only impurities present were traces of calcium and iron.

Out of the large number of reports received this time, there is not one complete failure, and scarcely any of the papers offer material for severe criticism. The chemical characters of antimony are so well marked, that the metal has a bad chance of escaping detection under any circumstances. At an early stage in the analysis it was observed that the addition of hydrochloric acid to the aqueous solution produced a white precipitate, and that a slight increase in the quantity of acid caused the precipitate to dissolve, thus clearly indicating that it was not due to the presence of either silver, lead, or mercury. Hence it appeared probable that the precipitate was one of the basic salts of either bismuth or antimony. A very simple experiment settles this point. If a drop or two of clear acid solution be added to water a basic salt is again precipitated, if this is an antimony salt it will dissolve on the addition of tartaric acid, while the bismuth precipitate will remain unaltered. The next step in the analysis—the precipitation of the antimony as tersulphide—affords confirmatory proof of the presence of this metal. The examination of this precipitate does not demand any special comment.

In testing the solubility of a substance or preparing a solution of it in water or any other liquid, it must be remembered that the rate at which the substance dissolves depends largely on the amount of surface presented by the solid body. We are accustomed to regard glass as a very insoluble substance, and it is seldom considered necessary to take into consideration the influence which liquids exercise on the glass vessels employed in chemical operations simply because the glass presents a minimum of surface to the action of the liquid. If, however, the glass be reduced to a very fine powder, even cold water is found to act upon it energetically, dissolving as much as 2 per cent. in a short time. The increased action of the solvent is the result of the great increase in the surface presented to its action, and this principle holds good in every instance of solution. When the tartar emetic was submitted to the action of water, that part of the powder which was in the finest state of division dissolved almost immediately, while the coarser particles remained undissolved for some considerable time. It is obvious that it would be a great error to conclude that the powder consisted of a mixture of two distinct substances of different degrees of solubility, such, for example, as tartar emetic and acid potassium tartrate, without some further inquiry, and the coarseness of the particles that appeared least soluble ought at once to excite the suspicion that the only difference between the parts of the powder is one of mechanical division.

Several of our correspondents do not appear to have experienced the advantage and convenience of the tabular arrangement for recording the notes of their analyses. Nearly every text book of analysis contains tables showing the most convenient way of conducting the examination of a solution. Beginning with the group re-agent hydrochloric acid, and assuming that the student is keeping his notes on a sheet of foolscap paper, he draws two lines right across the sheet of paper parallel with the ruling, and between these lines he records the addition of the group re-agent. If no precipitate is produced he passes on to the next group re-agent, the addition of which is noted in a similar manner. Suppose a precipitate is produced, the

analysis is now resolved into two distinct branches, the examination of a solid substance, the precipitate, and the analysis of a liquid, the filtrate. The student accordingly draws a line at right angles to the ruling of the paper, and dividing the remainder of the sheet into two columns, one narrow column to the left, which he heads "Precipitate," and a broad one to the right, which he heads "Filtrate." Under these two headings the notes of the two branches of the analysis are then written. The next group re-agent may produce another precipitate, in which case, a column is again ruled off for the precipitate as before, and so on to the end of the analysis. This arrangement has the great advantage of enabling the student to carry on the various branches of the analysis, simultaneously, without much risk of confusion.

PRIZES.

The First Prize has been awarded to LEONARD DOBBIN, 45 North Street, Belfast. The Second Prize has been awarded to C. J. BENNETT, 14 Waterloo Road, Widnes.

Marks Awarded for Analyses.

Leonard Dobbin (1st prize)	..	..	..	..	..	95
C. J. Bennett (2nd prize)	..	..	..	..	..	90
C. R. Kelliek	..	..	..	..	..	85
R. A. Cripps	..	..	..	..	..	83
T. C. Thompson	..	..	..	..	..	80
J. Harold	..	..	..	..	..	75
T. G. Niebolson	..	..	..	..	..	75
H. Sieberg	..	..	..	..	..	75
Scipio	..	..	..	..	..	73
Caistor	..	..	..	..	..	70
Cuprum	..	..	..	..	..	70
J. C. ..	..	..	..	..	..	70
Salleylie	..	..	..	..	..	70
Nil Desperandum	..	..	..	..	..	70
J. P. ..	..	..	..	..	..	65
Verbascum Thapsus	..	..	..	..	..	65
J. Ellis	..	..	..	..	..	63
C. F. Wyatt	..	..	..	..	..	63
Ozono	..	..	..	..	..	63
N. C. Cuttle	..	..	..	..	..	60
Progress	..	..	..	..	..	55
Syrupus	..	..	..	..	..	55
Non Nullus	..	..	..	..	..	50
Ferrum	..	..	..	..	..	20
Re agent	..	..	..	..	..	10

TO CORRESPONDENTS.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as second prize.

*. All Communications should include the names and addresses of the writers.

C. R. Kellick.—Calcium tartrate may have been present, but there is nothing in your paper to show that the calcium existed in this form.

J. Harold.—You gave very little evidence in support of the statement that the residue consisted of antimonous oxide.

H. Sieberg.—Antimonic oxide is not used in the preparation of tartar emetic. You gave very insufficient reasons for concluding that this oxide was present.

Nil Desperandum.—Having omitted to show that the residue from the aqueous solution did not contain antimony, your opinion that it was acid potassium tartrate is not worth much.

Verbascum Thapsus.—Your notes of the examination of the hydrogen monosulphide precipitate do not warrant the conclusion that arsenic was present in the powder. Marsh's and Fleitman's tests are of very little use without some proof of the purity of the re-agents.

Progress.—Your examination of the difficultly-soluble portion showed clearly that it consisted of tartar emetic, notwithstanding your conclusion to the contrary. The action of the sodium hydrate on the sulphide did not prove it to be arsenious sulphide, as antimonous sulphide is also soluble in this re-agent.

Non Nullus.—The few odd tests that you applied can scarcely be called a systematic analysis. You surely do not suppose that the existence of potassium tartrate in the solution after the antimony was removed was proof that the tartar emetic was adulterated with potassium tartrate.

Ferrum.—You evidently do not comprehend the necessity for employing the group re-agents in proper order. It will repay you to study this subject.

Re-agent.—Notwithstanding that you failed to detect potassium, or rather proved it to be absent, you conclude that the substance is tartar emetic, of which potassium is an essential constituent.

Pharmacalia.

THE SOUTH LONDON SCHOOL.

Monday, April 15, the prize medals and certificates were distributed to the students of the South London School of Pharmacy. A particular interest attached to the anniversary consequence of the unprecedented success which attended the candidates sent from this establishment to the last examination held at Bloomsbury Square.

The students, therefore, were in exuberant spirits, which they were not slow to evince while waiting for the formal opening of the proceedings. Mr. C. M. Barker occupied the chair, and though his duties were undertaken at a moment's notice, acquitted himself admirably. On the platform were the friends and supporters of the school, and some ladies, two of whom were members of Mr. Muter's classes. Opposite the chairman, and seated in the ex-cathedra, was Mr. W. Baxter, the secretary to the institution. He urged upon his auditors that under the system pursued at the South London School, it was only open to the diligent, assiduous worker to carry off the honours of the session; and that the negligent, indolent student stood but a poor chance of achieving any success beyond that attainable by the merest mediocrity. It was, moreover, a most salient feature of the recommendation which might fairly be advanced on behalf of the school that it was alike devoid of charter or endowment. Its only endowment was the brilliant success which had always attended its efforts to enable students to acquire the knowledge requisite for passing the examinations; and its only charter was founded on the undeniable skill and ability displayed by its lecturer and his assistants. This was probably the most effective assurance of the morning: it brought down the house, and there was loud and continued cheering. The visiting examiner (Mr. Joseph Ince) then rose, and after a few words of congratulation gave a short address on

The Scope and Essential Character of Pharmacy as a Branch of Study.

When last year I endeavoured to bring the claims of pure pharmacy before you, I was asked afterwards by the Rev. Chairman what was pharmacy? What were its special characteristics, and how might it be defined? I felt then, gentlemen, for the first time, how comparatively easy it is to talk about a subject, to describe it generally, and even to live in it, and work it out practically—and how desperately hard it is to define accurately in words. I felt ashamed that a member of one profession (the highest—theology) should ask a member of another, what the pursuit he so much lauded meant? and that I should get no answer. But being determined to be able to give a reason for the faith within me, I consulted the best known authorities—in vain.

I turned in despair to Barnard Proctor's admirable lectures "Practical Pharmacy." I hold the name of this pharmacist in honour, and you will remember how well it was represented in the last session. "Pharmacy," says Mr. Proctor, "may be defined to be the study of remedies. Once it was a sort of happy and miscellaneous combination of chemistry, botany, materia medica, and therapeutics; but by degrees each of these assumed the character of a distinct science, and left behind an ill-defined and unclaimed ground, which unappropriated section of the field of study has been called pharmacy." I hardly think that will do, and instead I venture to offer the following definition:—Pharmacy is the study of such preparations, processes, and their application, as are concerned in the art of medicine. That is as near as I can get—and you will see that if this formula be correct, pharmacy is a branch of medicine rather than a by-path of chemistry. Let me take a most familiar illustra-

tion—one with which you are all acquainted; the remedy called sweet spirit of nitre. The chemistry of the subject is an ever-recurring theme of discussion. It is a point not settled yet as to what actual decomposition of the spirit may have taken place in its manufacture, what may be the exact nature of the ether it contains, or what may be considered the final result of its distillation. Such details belong to its chemistry: a knowledge of them is essential to the pharmacist; nevertheless I repeat, and let me not weary you by the repetition, for I am exceedingly anxious to make the subject clear, this is the chemistry of sweet spirit of nitre. This remedy has been prepared by many processes. On the continent, in Germany and France, it has been made in a kind of extemporaneous fashion, which I by no means advise you to imitate. In the old London Pharmacopœia it was manufactured after a process with which probably few of you are now familiar, and this process, with certain practical modifications which were dictated by private experience, was the one almost universally employed until an infinitely better method, surer and more scientific, was added to the British Pharmacopœia by Professor Redwood.

These considerations, together with others respecting freedom from acidity and preservation, constitute the pharmacy of sweet spirit of nitre—that is, so far as the first half of the definition is concerned.

Change the illustration for a moment, and let us take opium as an example. It is not possible to select a more effective or more celebrated remedy; indeed, the subject is so vast that its separate branches have formed the life study of investigators. First we come to its different commercial samples—the Smyrna, Constantinople, Egyptian, Persian, and East Indian opiums. Treatises have been written about these varieties, and enter into the literature of materia medica. The plants from which opium is derived—the effects of soil and climate, the details of cultivation, and the whole history of *papaver somniferum*—this constitutes its botany. The therapeutics of opium occupy the care of the physician. Its alkaloids, primary and secondary constituents, their nature, elimination, and detection, raise opium into the highest chemical importance. What remains? A large field of study, not ill-defined, and not unclaimed ground—the pure pharmacy of opium. We have to learn what are those preparations and processes sanctioned by immemorial custom, or ordained by intelligent authority, which relate to opium as a remedial agent.

But I do not stop here, though on purpose I left sweet nitro explained half-way. I define pharmacy viewed as a special science as the study of such preparations, processes, and their application as are concerned in the art of medicine. The knowledge of their application leads us directly to the grand art of dispensing, and a mastery over that art is indispensable to every pharmacist. The way in which the various preparations and processes enjoined are used, combined, assisted, or controlled by the physician, the mode in which his instructions may be best carried out, his directions followed, and his intentions realised, the action and re-action of the remedies obtained by such processes on other remedies forming the compound ingredients of a prescription, is a second but an essential characteristic included in the definition of the word pharmacy, and without which the definition is incomplete. See what happens. There ensues inevitably a mutual understanding between the physician and the pharmacist. Both respect each other, and respect is the basis of true friendship.

Am I not right, therefore, in saying, that though without Chemistry we cannot move a step, and though Materia Medica and Botany are necessary to our education, yet that Pharmacy has a province of its own—one of paramount importance—and one which we are bound to learn thoroughly if we would know our own business, and hope for ultimate success?"

THE ROYAL KEW GARDENS.

A fair compromise has been effected with regard to the earlier opening of the Royal Gardens at Kew. On Bank holidays the general public, commendably desirous of enjoying a pleasure of the purest kind, will be allowed to enter at 10 o'clock. Sir Joseph Hooker has also issued the following regulation, which has been practically in effect for some years past:—The access for all persons visiting the gardens for study and improvement of whatever kind, whether botanists, horticulturists, artists, foreigners, or persons from a distance, in pursuit of any scientific inquiry or information, will be put on a systematic footing. All such visitors should call at the curator's office, and after signing their names and stating the object of their visit in a book kept for the purpose, they will enter the gardens by the office gate. The director points out that the morning hours must of necessity be devoted to the unrestricted performance of the incessant work which is indispensable to maintain a botanical garden in order. The first object contemplated in the Kew establishment was the advancement of the knowledge of rare plants, and the acclimatisation of new and valuable species. The magnificent manner in which this design has been carried out is the theme of universal praise, and it is allowed on all hands that there is no other botanical foundation in the world conducted on a grander scale. A section of the daily press is strongly in favour of the new arrangements, and the limit of the accommodation offered, representing that this unrivalled national collection should remain devoted to the cause of science, and should not be diverted from its original intention. Another section of periodical literature still advocates that Kew should chiefly minister to the amusement and recreation of the public. We cannot think the latter wish legitimate—it appears indeed both ignorant and selfish—and one which if carried out would endanger our national honour. London has numerous out-door enjoyments, and the inhabitants who can roam at leisure in our parks and pleasure palaces need not grudge the three morning hours which are reserved by the Kew authorities for the purposes of gardening and study. Besides the immediate function of the Royal establishment which is to enlarge the boundaries of a special science, its exquisite grounds have during the past year afforded the purest and most refined gratification to 700,000 persons. The charge of illiberality brought against the management should therefore surely be withdrawn.

A SCIENTIFIC DISCUSSION IN PARIS.

Pax vobiscum is not the motto adopted by the Académie de Médecine, Paris. A dispute, bitter as gall, and personal as our worst so-called society journals, has sprung up between M. Colin on the one hand, and M. Pasteur on the other. The origin of the feud was a paper on the successive development of virus-seeds during the period of incubation of diseases of mortification. The same subject was treated on the preceding year by M. Pasteur in company with M. Joubert, answered at the time by M. Colin at a subsequent meeting, when Pasteur, not being present, contented himself with writing a letter to the President, charging the author of the paper with *inexactitude*. The communication under notice was, therefore, a sort of formal answer to the objections which had been raised. No sooner had the reading ended when M. Pasteur explained his views. He had followed with attention the discourse just delivered before the Academy, but had learned nothing new. Virulent disease had been defined by himself and M. Joubert as a malady resulting from bacteria—let an animal be inoculated with them, and the infection spreads everywhere except in the blood. If, after his experiments, a contrary opinion was asserted, he demanded a commission, more especially as the statement of M. Colin implied that organic matter, containing neither bacteria nor their germs, could produce in the body of the living animal

bacterial disease (*des bactériides charbonneuses*)—that is, spontaneous generation. M. Colin replied that he founded his statements on direct experiment, microscopical and otherwise. His opponent had contradicted himself, for at one time he affirmed that bacteria could not be developed in the circulation, and now he alluded to "the moment when these bacteria could be formed in the blood." M. Bouley then rose and tried to throw oil upon the troubled waters. He thought well of a commission at which M. Pasteur should perform his experiments in the presence of M. Colin, and so the matter under discussion could be settled. M. Colin had been harshly judged, for his observation was new and important—namely that lymphatic ganglions constituted a sort of barrier which momentarily arrested absorbed virulent fluids, and consequently retarded their flow into the circulatory canals. Thus far, apart from the question of bacteria, M. Colin might claim to have arrived by his experiments at a result which had not hitherto been indicated by any other investigator.

A week after the discussion was resumed. M. Colin charged M. Pasteur with having omitted in the account published in the Bulletin, certain assertions which he had made in the debate; also he complained that he was represented as saying things he had never uttered. "J'observe sérieusement, j'expérimente sérieusement, et j'ai quelques droits à être traité sérieusement." Flat denial was given by M. Pasteur to these allegations, and he refused a commission on equal terms, for his facts had been accepted as an acquisition to science, and no further demonstration of evidence should be required. Very different, he remarked, was the situation of M. Colin. On some points all were agreed, but as regards others he had made assertions without proof. He had examined the matter of inoculation with the microscope, and found no bacteria, hence he concluded that there were none. M. Pasteur repudiated a theory based upon negative evidence. He had the right to demand that assertions which were contradicted by M. Joubert and himself should be made good. "But," continued M. Pasteur, "I was wrong when I stated that no one had contested my views, for when I formerly remarked that fowls were not subject to virulent inflammatory disease (*les maladies charbonneuses*) M. Colin said nothing was more easy than to inoculate them, whereupon I wrote a letter asking him to favour me with a fowl so affected." The fowl did not turn up, however. "Well, where is my fowl?" asked M. Pasteur, when his learned friend once entered his laboratory. "Where is my fowl?" was again the question, when the two met in the Academy. No fowl ever made its appearance, related M. Pasteur to his audience, with a comic nerve that must have led their thoughts rather to the *foyer* connected with the stage than to the *foyer virulent* which formed the basis of the quarrel.

Next in order came M. Colin, who ignored the whole affair, and reiterated his statements about the passages withdrawn from publication and the change in his adversary's opinions. M. Pasteur.—"It is a piece of unparalleled presumption. I tell you that I abandon nothing of what I have said verbally and that it is written down in the Bulletin, and that I have reproduced it." More scientific sparring followed on both sides—much more than we need repeat. M. Colin averred that Koch was the first observer who cultivated *les bactéries charbonneuses* outside the organism. He had traced them in the serum of the blood—in the humours of the eye and in the urine.

"As for the urine," interposed M. Pasteur, "it is false." M. Colin then entered at some length into the details of his experiments, not without interruption, and both combatants grew hot again about the fowl which refused the influence of inoculation.

M. Colin showed a disposition to branch off into the subject of fermentation, which the opposing chemist was by no means disposed to admit, when M. Bouley rose and said that a commission was more than ever necessary. The case, in his

... stood thus: M. Colin had affirmed that the disease in
... on (le charbon) can exist without bacteria. This M.
... denies. Let the one show a virulent ganglion without
... ida, according to his theory. Let the other take and
... ate this after his method. If no bacteria are produced,
... Colin will have gained his point; if they are developed, M.
... ur will be right.

... commission was decreed, and the members met once more.
... wretched fowl adventure is revived, out of which, as it
... rs to us, M. Colin came out but lamely. His two speci-
... had expired at the moment when they were about to
... rate a fact in therapeutics. M. Colin refused further dis-
... n with M. Pasteur, whereupon the latter rose to address
... use. He bade the young men sitting before him on the
... es not to come there in search of polemical squabbles, but
... instructed in systems. "Well, I denounce before you as
... ample of the most detestable of systems that which con-
... in saying with M. Colin that a negative microscopical
... vation suffices to establish the statement that a morbid
... exists outside the presence of bacteria in the inoculation
... r. If, unhappily, which God forbid, reasonings of this
... ere often produced before this assembly, I do not hesitate
... y that they would turn this academy into an object of
... ile before the learned world of Europe.

Colin: I declare that I refuse henceforth to enter into a
... ssion with M. Pasteur.

Pasteur: You are right a thousand times over. Accord-
... to me this declaration signifies nothing more than a secret
... e not to present yourself before the commission.

Colin: Such was not my notion.

... ends this curious episode, from which we may learn the
... n of the value of self-control. The occurrence of such a
... e in a grave philosophical debate would almost have been
... ght impossible; still more strange is it that it should have
... h place in the politest capital in the world.

THE EUCALYPTUS GLOBULUS.

... fore a remarkably select audience, the word being used in
... ense of limited, Professor Bentley delivered his lecture on
... lyptus globulus. Whether botany in itself is not attractive
... he general mind, or whether the subject chosen was one
... h was supposed to be exhausted, we cannot tell. Certain it
... at the number present bore no comparison with those who
... l the theatre when chemistry formed the basis of the
... urse. Yet, often as we have had the pleasure of hearing
... essor Bentley, we doubt if he ever got together so many
... of interest bearing on one theme, and he was decidedly
... arrassed in the attempt to get so much material into the
... tted time.

... the marvellous effect of Eucalyptus in arresting fever by the
... ruption of malaria has doubtless gained for the plant its
... great reputation. The tree was discovered in 1792 by
... illardiére in the island of Tasmania: it is found abundantly
... the mainland of Australia. To M. Ramel we owe its intro-
... ion into Europe, and the knowledge of its influence on
... ma. The plant has been successfully naturalised in Southern
... pe, and many parts of Africa, Asia, and America, but our
... er climate is an obstacle against its English cultivation. The
... is Eucalyptus belongs to the order Myrtaceæ, and its 150
... ies, with few exceptions, are natives of Australia. All the
... ies have evergreen leaves which, when the tree is a few
... s old, hang in an oblique or vertical direction, and give a
... racter to the landscape.

... he E. globulus exhibits the changing aspect of the foliage in
... ecial manner; in young plants the leaves are opposite,
... ed horizontally and are of a pale greenish blue; but the full
... n plant has alternate leaves with stalks about an inch long
... twisted half-way round, so that the leaves hang downwards,

as was well shown by a branch which was handed round to the
... audience.

These leaves are studded with internal glands, which are the
... receptacles of strongly scented volatile oils; the white, fully-
... expanded flowers are distinguished at once from those of the
... myrtle by the absence of petals, and in their bud state by their
... peculiar calyx, which is closed at the top by a little lid
... (operculum) thrown off as the flower expands. Hence the name
... of the genus *εὐ καλυπτός*, well covered.

Nothing is more remarkable than the large number of seeds
... which the fruit contains, and their smallness, resembling grains
... of fine sand. One ounce of the seed of the E. globulus, according
... to Mueller, is made up of 10,000 seeds; while a similar weight
... of another species yields more than double that number. What
... shall we say respecting this wonder of the vegetable creation,
... for we must not follow the professor through all his details? We
... may speak of the magic rapidity of its growth, both in
... height and girth of stem. In twenty years' time a man could
... find himself surrounded by a forest of his own planting. A tree
... of ten years old ordinarily presents the development of a well-
... grown oak of a century, and specimens are not rare in Australia
... which in fifty years have obtained a height of from 160 feet to
... nearly 200 feet; and from 50 feet to 60 feet in circumference
... at the base.

Mr. Thomas Hanbury describes a specimen in the grounds of
... the Palazzo Orongo, four miles east from Mentone, which
... five years ago was a seedling 3 feet high, and which, measured
... lately, was found to be 48 feet high, with a trunk having a cir-
... cumference of 3 feet at a yard above the ground. Mr. F. Jan-
... sen Hanbury mentions many trees in the garden at Mortola at
... least 70 feet high. Frequently specimens are found about the
... height of the Monument near London Bridge. One tree has
... even attained the colossal dimensions of 350 feet in height, and
... 100 feet in circumference.

Such a tree, of necessity, entirely alters the features of a
... country. The line of the Central Pacific Railway is to have
... 40,000 trees set along the 500 miles of their right of way. For
... the 500 miles of valley where they are to be cultivated, 800,000
... more trees will be required. The object sought to be obtained
... is to increase the humidity of the district and lessen its liability
... to drought, for the destruction of forest trees has had a most
... injurious influence on the climate. This fever-destroying
... agent on the one hand counteracts paludal miasma, and on the
... other has a sensible effect upon the rainfall. The far-spreading
... roots pump up water from the earth and thus drain the soil;
... while odorous emanations from its leaves prove a grand natural
... disinfectant. The chemistry of this subject has received im-
... portant elucidation from the investigations of Mr. Kingzett.
... Professor Bentley quoted abundant testimony respecting the
... anti-malarial efficacy of the Eucalyptus, which could be largely
... supplemented by those who are familiar with the literature of
... the genus. The conclusion drawn is irresistible, that full
... allowance being made for exaggerated statement, we may hail
... the introduction of this tree as of one whose leaves are for the
... healing of the nations.

Though the Eucalyptol of Cloez must be allowed a share in
... the antiseptic property of the leaves, Professor Bentley is still
... of opinion that the power possessed by the roots of absorbing
... water from the soil remains the greatest influence. The
... essential oils obtained from various species by aqueous distilla-
... tion from the leaf, form an important article of commerce. They
... have a camphoraceous (and we think) a penetrating and dis-
... tressing smell, at all events when in a concentrated state. They
... are employed as a resin solvent in the preparation of varnishes,
... and have been used by M. Rimmel with much advantage in
... perfumery and more recently as an ozonising agent. The timber
... of several species of Eucalyptus is remarkable for its solidity,
... hardness, and durability, and is especially useful in being

almost proof against the attacks of insects. The deciduous character of its bark dislodges the seeds of any parasite before they have had time to germinate. The planks obtainable are obviously of great length, and the ashes of the wood contain a very large proportion of potash.

The other industrial applications of eucalyptus would be too long to notice, whilst its more pharmaceutical bearings are familiar to the reader. We would cordially support the motion passed unanimously on May 1, "That the best thanks of the Council be given to Professor Bentley for the lecture on Eucalyptus globulus which he delivered to the Society on April 17 last."

THE PRELIMINARY EXAMINATION.

The report furnished by the examiner of the Preliminary Examination to the College of Preceptors is not creditable to our young men, and still less to their parents. Correspondents are quite sure to comment in different ways upon the matter, and to offer various suggestions. The plain truth is that up to the present time the majority of those intended for pharmacy as a means of living have not received a liberal education. A compulsory examination happens to have been imposed which has precipitated matters, and brought about a state of things as unnecessary as it is degrading. We hold that the greatest blessing, the best investment of money, and the truest kindness to a child, is, even by the exercise of a rigid self-denial to give him a well-grounded scholastic training before he enters upon the duties of his after-life, whatever those duties may chance to be. Such a child has within himself the power of rising—the spring of ultimate progress, and the key to success.

So true is this statement that we find the tradesman and artisan in astonishing numbers, deliberately gaining for themselves in middle life, that intellectual qualification which will put them in a position of independence—true independence being the possession of that abstract knowledge, the application of which can be utilised in furtherance of all pursuits, whether trade, mechanical, technical, professional, literary or otherwise. The children of those working men about whom we have spoken will have a certain provision against all contingencies, for their fathers scrape, contrive and pinch, in order to give them the safeguard of a sound, solid education. By that they mean, reading, writing, arithmetic, history, geography and Latin. What! a dead language for our future ironmongers, bakers, carpenters and linendrapers! No, but a study which is at the basis of learning and mental training, as well as the foundation of the language which we speak. If these men recognise this truth, how much stronger is the argument with regard to those whose special business, pharmacy, depends so largely on this branch of study.

Let us turn to the record before us, in which we read, that in the case of youthful pharmacists "Arithmetic is still the weak subject, and it is surprising to find how large a proportion (more than 75 per cent.) fail in a simple question given to test accuracy of work." This is the parents' and the teachers' fault, and both are inflicting a gross injustice on those who are to follow our vocation.

The state of pharmaceutical Latin cultivation is shown to be deplorable. Our boys sometimes copy from each other, or they use cribs, or finally subject themselves to the huge labour of learning by rote that which they should understand and be able to use with equal pleasure and advantage.

We are persuaded that there is some great defect somewhere, and we do not blame the pupils. We are driven but to two conclusions—firstly, that parents are ignorant of the position, and that they in common with their children think the passing of an examination the one thing needful; secondly, that there are masters who teach foolishly, unfaithfully, and, we add, abominably.

AT THE ROYAL ACADEMY.

Leaving this darkness, we linger with satisfaction before the portrait of a distinguished pharmacist which adorns the walls of the Royal Academy. It is that of Mr. Peter Squire (No. 523) by Cyrus Johnson. As a painting it is most successful, and well represents the features of one to whom we are originally indebted for the admirable examination system at present developed and efficiently carried out in Bloomsbury Square.

The Pharmaceutical Council.

THE Council met on May 1. The absent members were Messrs. Atherton, Brown, Hanbury, Mackay, Rimmington, and Schacht.

PROFESSOR BENTLEY

Was officially thanked for his lecture on "Eucalyptus Globulus" on April 17.

THE CONVERSAZIONE

Seems likely to be drier than ever. Last year coffee and butter could be had by paying, but the refreshment contractor at Somerset House has this year intimated that he will not open his refreshment rooms on the occasion of the *conversazione* unless the old plan be reverted to of paying a fee of 1s. per head for every person who enters the building. He, however, offers the use of the refreshment room to any other contractor, but not of the kitchen arrangements. The Council seemed rather indignant at this announcement, and talked of writing to the Lords of the Council about this unfriendly contractor, but it was ultimately resolved to bear the deprivation with dignity. It was further decided that the committee should make the best arrangements possible under the circumstances. It may be that baskets will be allowed after all.

THE APRIL EXAMINATIONS.

The following results were recorded:—England: Major, 21 candidates, of whom 14 passed; Minor, 106 candidates, of whom 57 passed; Modified, 5 candidates, of whom 3 passed; Preliminary, 324 candidates, of whom 181 passed. Scotland:—Major, 1 candidate, who passed; Minor, 14 candidates, of whom 8 passed.

In reference to the last Preliminary Examination, an extract from the report presented by the examiner appointed by the College of Preceptors was submitted. He noticed a marked general improvement, but he observed that arithmetic is still the weak point with most of the candidates. In his report the examiner gives an amusing specimen of cramming from one of the answers received. The following passage from Cæsar was given for translation:—

Nam etsi sine ullo periculo legionis delectæ cum equitatu prælium fore videbat, tamen committendum non putabat, ut pulsus hostibus dici posset eos ab se per fidem in colloquio circumventos.

A certain candidate, whose name and locality were suppressed, had given the following as a translation:—

All these differ among themselves in language, in institutes and in law. The river Garum divide the Gauls from the Aquitanians and the Seine divide them from the Belgæ.

The young gentleman had evidently prepared himself for another paragraph.

A report of the Edinburgh examinations was received from the English examiners who accompanied the recent deputation. It is said to be long and detailed, but it has not yet been printed, nor is there any promise of its publication. It may be mentioned, however, that the satisfaction expressed by the Council as to the uniformity of the English and Scotch examinations is not universally shared, the discrepancy in the results attained being still too curious to be accepted as the result of the mere difference of educational acquirements in the two countries.

The Benevolent Fund Committee recommended among other grants the payment of 17*l.* for a year's education of the child of a deceased chemist and druggist in Belgium. Mr. Owen criticised this employment of the fund, but it was defended by the President as a judicious mode of giving assistance.

LAW AND PARLIAMENTARY.

The Duke of Richmond had promised his attention to the questions of the Council respecting the Medical Act Amendment Bill.

It was resolved to address the Medical Council in reference to the proposed prohibition of apothecaries' weights by the new Weights and Measures Bill.

VERMIN KILLERS.

Mr. J. H. Collins, the public analyst for the borough of Penzance, had reported to the magistrates of that borough that he had analysed the body of a duck and the stomach of a pig, in both of which he had found strychnine. According to the report inquiries had been made among the Penzance druggists, from which no definite information had resulted, for the reason (it was assumed) that those druggists were in the habit of selling vermin killers containing strychnine without giving the names of purchasers. This report had been sent to the Local Government Board, and by the latter body a copy had been forwarded for the information of the Pharmaceutical Council. Some members of Council were indignant that such a report should have been issued. Mr. Atkins was hardly prepared to believe that the druggists of Penzance, whom he knew to be a most respectable body of men, should so disregard their moral obligations. Mr. Betty thought the charge too vague for Council to take up, and he was sorry that the Government should think it necessary to send them a report on the death of a duck and a pig. Several proposals were made about addressing the Penzance druggists, addressing the Penzance local secretary; but it was finally agreed to publish the report, and leave the Penzance druggists to accept or deny the charge brought against them.

COCHINEAL AND KINO.

The Secretary read a communication from the Colonial Office, enclosing one from the Secretary of State of the Bahamas, asking information with regard to the preparation of cochineal and kino for export. He stated that the Curator had been instructed to make inquiries, which he was now prosecuting.

STATUTE LAW REVISION.

A letter had also been received from the Statute Law Revision Committee asking if any sections of the older Pharmacy Acts had become obsolete. The Secretary undertook to examine the Acts for the purpose of investigating this question.

TRADE QUESTIONS.

A meeting of chemists at Newcastle had forwarded, through their local secretary, resolutions passed by them in reference to prosecution in a case of counter prescribing, and also in reference to the labelling of proprietary medicines.

LADY MEMBERS.

Mr. John Wade had sent a notice of motion, to be brought forward at the annual meeting, resolving to admit ladies to membership.

Provincial Reports.

ABERDEEN.

AT THE ANNUAL MEETING of the Society of Chemists and Druggists, held on April 15, the following gentlemen were elected office-bearers for the ensuing year:—President, Mr. David Ritchie; Vice-President, Mr. William Giles; Treasurer, Mr. James Paterson; Librarian, Mr. C. Coutts; Secretary, Mr. Strachan. The report showed a balance of 16*l.* in favour of the Society, and a generally prosperous condition. It was resolved to spend 5*l.* on books for the library.

CARLISLE.

Too FAR NORTH.—A week or two ago a firm of druggists in this city received by post (with an extra penny to pay for dependent postage) a letter which must have looked rather a welcome one in these days of dull trade—unless it be that bad general

trade never affects the sale of drugs. It was an order for a variety of cosmetics to the extent of nearly 5*l.* The writer professed that he had recently been in Carlisle and had purchased some of these preparations at the shop of Messieurs, and he wanted some more. In order that there might be no mistake, and to show there was no "deception," he enclosed labels which he professed had been taken off the bottles. There was a violet perfume for the handkerchief, at half a guinea a bottle, also a triple extract at half that price; a preparation for the skin at 5*s.* 6*d.*, and a "fountain of youth" to restore grey hair permanently to its original colour, and give it the "healthy splendour of youth." Such a wonderful preparation as this could not, of course, be sold under half a guinea. Three bottles of each were to be sent by return; but as the chemists did not happen to have such commodities in stock and never had any it was clear there was a screw loose somewhere. It occurred to them that perhaps some other druggist in the city had been the fortunate dealer upon the occasion of the visit to Carlisle. Inquiry led to disclosure, and finally it was ascertained that every druggist in the city had been favoured with an order couched in somewhat similar terms, but varied somewhat as to the articles required. This was clearly a case for investigation by certain "active and intelligent" members of society, in whose hands the case was eventually placed.

DUBLIN.

PHARMACEUTICAL SOCIETY OF IRELAND.

THE monthly meeting of the Council of the above Society was held at the College of Physicians, Kildare Street, Dublin, on Wednesday, May 1, Dr. A. Smith, Vice-president, in the chair. The following were present—Mr. Wm. Allen, Mr. J. G. Boileau, Dr. Collins, Mr. J. Goodwin, Mr. Wm. Hayes, Mr. J. T. Holmes, Mr. S. Oldham, Sir G. Owens, Mr. Payne (Belfast), Mr. Pring (Belfast), and Professor Tichborne. The following letter from the President was read:—

4 Merrion Square, W.
April 23, 1878.

My dear Vice-president and Members of Council—

I regret that I feel necessitated to resign my office as President, and my place on your Council.

I felt highly honoured by being named by the Legislature as your President on the formation of the Pharmaceutical Society of Ireland in 1875, and I need scarcely add, I have been greatly gratified by the confidence and trust you have reposed in me by since electing me as your President in each succeeding year.

We had many difficulties to encounter—we had no organised body, as they had in England, to start with as supporters. We had not only to organise our support, but we had to create a constituency; and were without funds. We have overcome all these difficulties. We have founded, I may confidently assert, a Pharmaceutical Society which is solidly established, and which I have no doubt will continue to prosper.

We have no longer fears as to our financial prosperity. We have already on our list 158 pharmaceutical chemists, and 101 members, fully qualified by position and education for the distinction they have acquired. Thus there already exists throughout the country a body of 200 well-educated pharmaceutical chemists, not only capable of supplying the wants of the country as compounders of medicine, but well adapted to diffuse around them useful information.

I think the time has now arrived when the Pharmaceutical Society of Ireland may take its place among the scientific institutions of the country, and stand firm on its own basis, independent of extraneous aid.

For myself, I shall always look back upon my connection with the formation of the Pharmaceutical Society of Ireland as one of the events of my professional life of which I shall ever retain a grateful recollection.

I remain, my dear Vice-president and gentlemen,

Ever gratefully yours,

D. J. CORRIGAN.

To the Vice-president and Members of the Pharmaceutical Society of Ireland.

On the motion of Sir G. Owens, seconded by Mr. Pring, it was resolved unanimously to request the President to withdraw his resignation.

Dr. Frazer tendered his resignation of his seat on the Council, which was accepted.

PHARMACEUTICAL SOCIETY OF IRELAND.

A SPECIAL meeting of the Council of the above Society was held at the College of Physicians, Kildare Street, Dublin, on Wednesday, May 8, for the purpose of electing members of Council in place of Sir D. J. Corrigan, Bart., and Dr. Frazer resigned, also to elect a president in place of Sir D. J. Corrigan, president,

resigned. The following were present—Dr. A. Smith, vice-president, in the chair, Mr. Wm. Allen, Mr. J. G. Boileau, Dr. Collins, Mr. J. Goodwin, Mr. Wm. Hayes, Mr. J. T. Holmes, Dr. Macnamara, Mr. S. Oldham, Sir G. Owens, Mr. Payne, Belfast, Mr. Pring, Belfast, Dr. Ryan, Professor Tichborne, Dr. Whittaker, Belfast.

On the motion of Mr. Holmes, seconded by Dr. Ryan, Dr. Smith was unanimously elected president. Dr. Smith in declining the honour said that he regretted very much that from private reasons he could not accept the position, he was quite willing to remain vice-president of the Society and to continue to do anything he could to promote its interests and to assist in any way possible.

Mr. Pring proposed and Mr. Allen seconded the election of Professor Tichborne, as president. No other candidate being proposed, the chairman, amidst applause, declared Professor Tichborne unanimously elected.

The new president briefly thanked the members present for the honour paid him, and took his seat amid the congratulations of all present.

On the motion of Mr. Holmes, seconded by Mr. Goodwin, Mr. Henry Bennett, pharmaceutical chemist, Kingstown, was unanimously elected to fill the vacancy caused by the retirement of Dr. Frazer.

On the motion of Sir G. Owens, seconded by Mr. Pring, Mr. Brunker, pharmaceutical chemist (of the firm of Anderson & Adams, apothecaries, Grafton Street, Dublin), was elected unanimously member of council, in place of Sir D. J. Corrigan, Bart., resigned.

This concluded the business of the meeting.

GLASGOW.

THE CHEMISTS' AND DRUGGISTS' ASSOCIATION—MR. FRAZER ON PHARMACEUTICAL POLITICS.

THE annual meeting of the Association was held on May 1, on which occasion Mr. D. Frazer, the president, delivered the following valedictory address:—

Gentlemen,—The difficulty which certain high dignitaries of the country experience at this moment of getting into fisticuffs with their real or supposed enemy, that of not quite clearly seeing what they are to fight for or about, is a trifle to the difficulty I have had in fixing upon a topic to speak upon to-night. I have never been very good at erecting a man of straw for the mere fun of having the opportunity of knocking him down as soon as he was got on his legs; sometimes an ignoble, and always an easy task. That means, in this instance, that not knowing of any real object of interest to us pharmacists, as *pharmacists*, on which I could throw any new light, I have not attempted to conjure up a merely fanciful one with which I might needlessly have occupied your time. In fact I do not know a single pharmaceutical topic now under the horizon that has not already been threshed to very chaff.

For instance, you do not need me to tell you about the Trade Association. I wearied you almost to death on that subject at the beginning of last session, and you revenged yourselves upon me at your next meeting by unanimously acting in the very teeth of my opinions. Since then I do not know that anything new has occurred in regard to this association. It is still, I believe, going on in the even tenour of its ways, and so also is the Pharmaceutical Society. My notions regarding these two societies remain precisely as they were eighteen months ago. I still think it a pity that any chemist and druggist should remain outside the original society. I still think that the members of the Trade Association who are not also members of the Pharmaceutical Society, should, where it is possible, become so, and so enjoy all the advantages offered by it as one of the legally recognised institutions of the land. Or, to quote from my address given in November, 1876—"Let the two really become one. Let them enter into the marriage relation now, and, becoming one, and with one governing and a truly representative head, the whole body, fitly joined together, will move on sweetly, and without a jar."

Then this "sale of patent medicines" question does not need discussion here. The letters and articles in our journals surely do not want to be supplemented by long speeches! On this subject all I venture to say is, there is little use in barking when you can have no possible hope of biting. The Government of this country most assuredly will not legislate merely to benefit us; it will not stop our neighbours selling articles they are quite as competent to sell as we are, any more

than it will stop us selling articles just as foreign to our legitimate business as patent medicines are to the trade of grocer or of bookseller. I think, too, it is needless to be distressed about other folks selling them at a ruinously low price. That cannot last long. It will not pay them, any more than it will pay you or me, and if you leave them alone they will soon be glad to cast this sort of "physic to the dogs," and to be content with their own legitimate business. Meanwhile you keep up the prices at their makers' standard, and you will find yourselves winners in even this race—by-and-bye.

As to counter practice, I have still nothing new to add here to what I said when Professor Redwood addressed us on the subject in September, 1876. I never was afraid, and am not yet afraid, of giving my advice, so long as I charge nothing for it, to anyone who asks it. I will not go out of my premises to give that advice, nor will I use a lancet or a pair of forceps on any unhappy patient who might be foolish enough to ask me to do so. But I intend to do in the future, Nottingham case notwithstanding, precisely as I have done for over 40 years in the past, and as all of you may do without let or hindrance.

I have nothing new to tell you on educational matters. I still hold the views I did when, years ago, advocating in the London Council much greater liberality in their grants. I still think the various examinations unnecessarily high, and the fees much higher than our students can well afford; but as I failed to get support for my views on these subjects then, I did not, and do not, care to continue to wage a war of mere words, and where no action can be expected to follow.

Yet one more burning topic of a year or two's standing, the "milk of sulphur" one. Happily it—at least for the present—seems to be burnt out, and so I do not desire to stir it up again, for if I did I fear I would only get my own fingers burnt for my pains, and for that I see no urgent call at present.

Having now exhausted the list of the topics on which there was "nothing" to say, I will, before closing, with your permission, make a few remarks upon a topic broached, so far as I know, for the first time, by myself here at the close of last session, namely, the mode of electing representatives to the London Council. My words on that occasion were as follows:—"At this hour the whole country is called upon to elect fourteen councillors to supply that number of vacancies. You, in Glasgow, are asked to record your votes for men you never saw, and never heard of, at least there are not a few names of men of whom I have never heard, and whom, to my knowledge, I have never seen. I felt this to be an anomaly the first time I sat at the Council table, when every face but that of Mr. Mackay was strange to me, and our vice-president came all the way from Dartford, in the extreme south of England. I said to him that he could know nothing of me, and I could know as little of him. I then suggested territorial representation, that the country should be divided into districts, London, of course, getting the lion's share in the representation, and sending a man known to it. Scotland, I suggested, should have two, one for the east, and one for the west half, or for the north and south halves, as might be arranged, &c. I broached this subject frequently in private, and would have brought it before the council by a motion, could I have got any support to warrant me in doing so, but failing this I left the matter over. This is one point in which I agree with the Trade Association—territorial representations—and if it takes this topic up as it bears upon the London Council, I, for one, will wish it every success in it."

I have but little to add to this. Every year, and no year more than the present, has confirmed me in the opinion so expressed last year. It has been objected to this scheme that considerable difficulty would be experienced in deciding upon equitably distributed electoral districts. But surely if this difficulty was overcome with some success in fixing upon centres for carrying on the preliminary examination, it could also be overcome here. It may, perhaps, be urged as an objection to its adoption that some of the existing and much respected councillors might by it lose their seats at the Council. I do not see that this is a necessary consequence. If Liverpool or Manchester preferred Mr. Bottle, of Dover, to any Liverpool or Manchester man willing to go into the Council, then they might elect Mr. Bottle, supposing Dover was so far left to itself as to give them the opportunity.

I do not wonder that in some quarters it has been strongly urged upon candidates for the London Council to publish their views on pharmaceutical matters, in addresses through the press, and had I been a new candidate for election, and so my

ers not have been known, or had it been the use and wont in
ing members to publish such addresses as some of the
tors desire, I would willingly have done so myself.

ut I think the mode now advocated a more excellent one.
ated addresses can only give a vague idea of the candidate's
qualifications for the office he seeks to fill, and tell how
tends to vote in the future, whereas if the plan of district
territorial representation be adopted, and a local man is
cted as the candidate for any given district, his whole
acter, his social standing and influence, as well as his views
he pharmaceutical topics of the day would be thoroughly
wn. What he had done in the past would be as well known
what, by published addresses, he proposed to do for the
ire. In fact, he would be known inside and out.

f it be objected that this plan is an innovation upon the
sting mode of election, I answer, it is so more in appearance
in reality. For even as it is at present the existing
nbers of Council, though they have been put into it by the
es of the whole country, come to be looked upon in the
ncil, as also out of doors, as *local*, instead of as imperial re-
sentatives. The actual London men are invariably spoken of
he "Louden members," and as Mr. Mackay and myself too
I know, he and I were everywhere and always termed
embers of the North British Branch," even though it is quite
ain the great bulk of our votes were English ones!

n closing these remarks, it only remains that I thank you, as
b most sincerely, for the great forbearance and indulgence
have for the last two years shown to me while occupying
chair, and I assure you that in now retiring from it, I shall
inue to do all in my power, in other ways that may open to
to show that I have not been ungrateful for the confi-
ce and trust you have so largely extended to me during those
rs.

Mr. Fairlie having moved a vote of thanks to Mr. Frazer for
address and presidency, which was cordially adopted
election of officers for the ensuing year was proceeded with,
result being as follows:—

resident, Mr. A. Kinninmont; Vice-president, Mr. J. M.
r. Fairlie; Treasurer, Mr. J. A. Clarke; Librarian, Mr. J. Walker;
ncil, Messrs. Daniel Frazer, John Currie, sen., T. Davidson,
Greig, R. McAdam, W. Whyte, J. W. Pettigrew, R. Brodie,
oster, R. C. Rait, J. L. Hatrick, and A. Pane; Auditors,
rs. J. Fenwick and J. C. Steele.

one present being willing to accept the office of secretary,
J. Walker was asked to act as such *pro tem*.

HULL.

A FAREWELL DINNER.

the 30th ult. Mr. J. F. Smith, pharmaceutical chemist, who
aving this town for Scarborough, was invited by a few of
brother chemists to a farewell dinner at the Cross Keys
el. Mr. C. B. Bell occupied the chair.

fter the usual loyal toasts had been given and duly honoured,
Chairman proposed "Our Guests," and in well chosen lan-
ge wished him every success and happiness in the future.
Mr. Smith suitably acknowledged the compliment.

The Pharmaceutical Society" and other toasts followed.

LIVERPOOL.

THE REGISTERED CHEMISTS' ASSOCIATION.

annual dinner of this Association took place on the
ult., at the Adelphi Hotel. Forty-five gentlemen were
ent, Mr. J. Abraham presiding.

Mr. A. E. Tanner having given a recitation of "The Raven,"
Mr. J. A. Turner gave the toast of "The Registered Chemists'
ociation of Liverpool." This was responded to by the Hon.
retary, Mr. B. Dickens, and by Messrs. Parkinson and
ckinlay. The Secretary mentioned the gratifying demand
there had been from all parts of the country for the new
ion of the Price List.

he toast of "The Liverpool Chemists' Association" was
posed by Mr. J. Shaw and acknowledged by the president,
T. F. Abraham, and by Mr. Williams, F.C.S., the hon.
etary.

he Chairman then gave "The Pharmaceutical Society." He
l that its success abundantly proved the wisdom of its
nders. He alluded to the able discharge of its duties as an
educating and examining body, recalling the names of illus-

trious men who had been among its lecturers and councillors.
The names of its present lecturers were received with applause,
which showed that pleasant recollections of Bloomsbury Square
were potent with many of the gentlemen present. The work of
the society as a legislative body, by its Benevolent Fund, and
by its publication of the *Pharmaceutical Journal*, were recog-
nised; and the mention of the last recalled the obligations of
the trade to the CHEMIST AND DRUGGIST as a trade journal. The
toast was responded to by Dr. Symes and by Mr. Geo. A. Red-
ford. Mr. Woodcock proposed the toast of "The Chemists of
Chester and Birkenhead." Mr. Shephard, president of the
Chester Chemists' Association, responded for Chester, giving
an account of their society. Mr. A. Stewart, in responding for
Birkenhead, gave pleasing testimony to their reasonable hour
of closing—8 o'clock, and to the fact that all closed on Sunday.
The toast of "The Wholesale Trade" having been given by
Mr. Fingland and responded to by Mr. R. Sumner, the vice-
president, Mr. A. Redford, "crowned the edifice" of the
evening's enjoyment by proposing the toast of the esteemed
president of the Association, Mr. J. Abraham. It was received
in a manner which testified to the appreciation of the services
which, in an eminent degree, Mr. Abraham has rendered to the
Association.

Mr. A. H. Mason, with Messrs. J. Hodgson and J. S. Watson,
had contributed much to the evening's enjoyment by an excel-
lent musical programme. Mr. H. Jackson (Messrs. W. & H.
Jackson), gave a superb rendering of Longfellow's "Psalm of
Life." The toast of "Our Musical Friends," responded to by
Mr. A. H. Mason, and the health of the vice-president, Mr. A.
Redford, having been received with honours, the company broke
up having spent an evening about which there was only one
regret, viz., that "it only comes once a year."

LIVERPOOL CHEMISTS' ASSOCIATION.

THE thirteenth general meeting was held at the Royal Insti-
tution, April 11, 1878. The President, Mr. T. F. Abraham, in
the chair.

After the minutes had been confirmed, and donations to the
library announced,

Mr. M. Conroy, F.C.S., alluded to the report of the last
meeting of the Pharmaceutical Council relative to a discussion
respecting the publication of papers read before provincial
associations, and to the commendable part which Mr. Shaw had
taken to advocate their interests. He considered members were
indebted to Mr. Shaw, and he moved a formal vote of thanks.
Dr. Symes thought the part Mr. Shaw took in the discussion
was one to which they would all agree, and he had much
pleasure in seconding the vote of thanks.

Mr. Mason said he had some experience of the effect of being
able to tell authors of papers that they would be supplied with
a limited number of copies free of charge, and as many con-
tributors to this Association never saw the *Pharmaceutical
Journal*, he thought if the papers were worth publishing they
were worth the small expenditure and little courtesy which a
few reprints of the paper, "with the editor's compliments,"
would convey. He was led to believe that there was a sum of
money placed for disposal by the editor of the journal at his
own discretion, and if the Council would suggest that a portion
of this might well be disposed of in this way, or in the pro-
vinces, if the conductors of the journal finally decide to
exercise such parsimonious discretion, he would recommend
authors to send their papers to THE CHEMIST AND DRUGGIST.

Mr. Sumner and the President supported Mr. Conroy's
motion, which was carried with acclamation. Mr. Shaw briefly
thanked the gentlemen present for this expression of their
confidence, and promised to do his utmost to remedy the
grievance when opportunity occurred.

Dr. Symes called attention to a fungoid growth which he had
found in aq. chloroformi, B.P.

Mr. A. H. Mason, F.C.S., read a paper on "Chloroform."
See p. 202.

The President said that Mr. David Waldie, the first lecturer
to the Association, and one of its honorary members, had
suggested to Professor Simpson the use of chloroform as an
anesthetic. With reference to the relative merits of chloroform
made from pure and from methylated spirit, he had been
assured by physicians, whose opinions were entitled to all
respect, that the effects of the two were not identical.

Mr. E. Davies, F.C.S., considered the brown coloration
referred to would be owing to the presence of an excess of chromi-
um being used. As a scientific chemist, he saw no reason why one

chloroform should not be as pure as the other; but looking at it as an outsider, he must confess that if he had to place himself under its influence, he should prefer the few pence additional cost and use the ethylic chloroform.

Mr. Shaw said he had listened with pleasure to the paper which had just been delivered. It was interesting from both chemical and pharmaceutical point of view. He well recollected the time of the introduction of chloroform as an anæsthetic in Edinburgh by Professor Simpson, and the success which attended its administration. The manufacture of chloroform was for some years carried on in Scotland, in consequence of the excise duty on rectified spirit being so much less there than in England, and no duty being charged on its exportation southwards. This circumstance virtually gave a monopoly to the Scotch manufacturers, which they have to some extent maintained, notwithstanding the equalisation of the duty on spirit some years ago. He was scarcely prepared for the statement, that it was impossible to tell the difference between chloroform, prepared from pure spirit and that prepared with methylated, for he was under the impression that by allowing the two chloroforms to evaporate from a measure he could tell the difference.

Dr. Symes said that chloroform of equal purity to that of Messrs. Duncan, Floekhart & Co. is prepared by Messrs. J. F. Macfarlane & Co., of Edinburgh, and possibly by other makers. Chemically speaking there is absolutely no difference between chloroform prepared from pure and methylated spirit if properly purified, but he was not prepared to say that constitutionally there is none—none that can be detected by the human economy, this being a question for the medical man rather than for the chemist. Mr. Brown some years since showed that the sulphuric acid test of the Pharmacopœia is incorrect. Impure chloroform is not appreciably coloured by agitation with sulphuric acid, the acid itself, however, is deeply so. Pure chloroform, on the other hand, when agitated with sulphuric acid, and afterwards carefully examined by reflected light, is found to possess a slight colour. The presence of a small quantity of alcohol considerably enhances the keeping qualities of chloroform, and as regards its detection Mr. Dott has shown that specific gravity is even more delicate than the molybdic acid test of Mr. Davy.

Mr. A. C. Abraham said he believed fatal cases had arisen in Edinburgh during the administration of chloroform, and his experience during his residence there, was that the medical men were strongly prejudiced against the use of methylated chloroform.

Mr. M. Conroy, F.C.S., endorsed the leading principles of the paper, and fully concurred with what had been said in reference to the Pharmacopœia instructions, he had prepared the sample of chloroform exhibited, and had from time to time taken the specific gravity of many samples, but he never yet saw one of sp. gr. 1.500.

Mr. A. E. Tanner said he had twice been under the influence of chloroform, the first time he did not know the source of the chloroform, but he suffered from severe vomiting. The second time he used Macfarlane's methylated chloroform, and he experienced no ill effects whatever, and should he ever require it again he should prefer the same kind.

Mr. Mason replied at some length to the several queries raised, and a vote of thanks having been proposed by Mr. Davies, seconded by Mr. Shaw, and carried unanimously, the members adjourned.

The fourteenth and concluding general meeting of the twenty-ninth session was held on the 2nd inst., the President, Mr. T. Fell Abraham, in the chair.

Dr. Symes and Mr. C. H. Stearn exhibited and explained phonographs of their own manufacture. The exhibitors had experimented on their own account as to certain details in attempting to perfect the machine. The two instruments shown did not differ materially from each other, nor from the best known models of which there is any record made. The impression cylinders are of the same dimensions in each model—some 6 inches in diameter; but the rotating screws giving the horizontal motion of the cylinders differed somewhat in size of thread. Mr. Stearn exhibited his machine, but being apparently less sanguine than the doctor he refrained from testing its practical capabilities. Dr. Symes, however, was content to first warn his audience against disappointment, and then produce the best results he could from his phonograph. He explained briefly its construction, and showed what extreme delicacy of workmanship is necessary. For instance, the cylinders required not only to be turned "true," according to the general acceptance of the terms amongst mechanics, but true to a hair's

breadth. He pointed out that even in the slides holding the mouth-piece and the recorder, which becomes the repeater, the slightest vibration of the pieces interfered with the end sought after—the production of articulate speech being blurred by the action of the points on the tinfoil enveloping the cylinder, and on which the indentations are the records of the air waves or sounds conveyed primarily by the human voice into the instrument through the speaking diaphragm. He confessed the belief that we had been rather too sanguine in our expectations of the phonograph; but on the other hand Mr. Stearn stated that the results of a few days spent in experimenting encouraged him greatly. It may be remarked that Mr. Stearn had constructed his resonator, the trumpet-shaped tube intended to render more clearly audible the sound emitted from the instrument to persons at a distance, of vulcanite, whilst Dr. Symes had one of cardboard. Discarding this for the superior one of his fellow phonographist, he proceeded to charge the instrument with sounds. Mr. Stearn officiated as the medium, and while the tinfoil-covered cylinder was being turned by Mr. Symes, he shouted an almost deafening succession of "hip, hip, hurrahs" into the speaking diaphragm, which in this instance was constructed of a piece of bladder. The cylinder being reversed, the audience strained every nerve to catch the reply. There was a reply, and it might be construed as a repetition of the very vigorous exclamations of Mr. Stearn modulated intensely, as that was audible being something resembling what might be expected of the voice of a very young child from the middle of a bale of cotton attempting to articulate the exclamation. Some laughter of a hearty character was next injected into the instrument, and this time better success was attained, for the repetition was certain, though somewhat asthmatic and "aged" in character, and still subdued. Other attempts were made with the numerals, and faint, very faint repetitions received, but not sufficient to demonstrate that the phonograph—admittedly only a germ at present—has the elementary power of reproducing the utterances of the human voice and other sounds. A paper was next read by Dr. Symes on "Microscopic Germs in Pharmacy," and votes of thanks were passed to the two gentlemen for their entertainment. The election of president of the association for the session 1878-79 resulted in the choice again falling upon Mr. T. F. Abraham.

LOUTH.

A SPLENDID font has recently been placed in St. Mary's Roman Catholic Church, Louth, by the liberality of Mr. F. J. Clarke, of Lincoln. It is elaborately carved, and its value is estimated at about 100*l*.

NEWCASTLE-ON-TYNE.

THE CHEMISTS AND DRUGGISTS' ASSOCIATION.

At a recent meeting of this Association it was proposed by Mr. Hogg, and seconded by Mr. Welsh, that this meeting deems it advisable that all patent medicines which contain poison should bear a label distinctly stating what poisons enter into its composition, and in what proportion, and should be glad to see the Pharmaceutical Society take action to this end.

It was proposed by Mr. Ward, and seconded by Mr. Smith that this meeting would view with satisfaction any assistance which the Pharmaceutical Council might give to the Trade Association in conducting the trials now pending in relation to counter prescribing.

NOTTINGHAM.

NOTTINGHAM AND NOTTS CHEMISTS' ASSOCIATION.

A MEETING of this Association was held at Britannia Chambers Pelham Street, on Monday, May 6, the chair being occupied by the Vice-President, Mr. R. Fitz-Hugh, F.C.S. There was a fair attendance of members and associates. The hon. secretary (Mr. R. Jackson) announced the receipt of several donations amongst which was the handsome sum of five guineas from Messrs. Heaton, Squire & Francis, of London, and hearty vote of thanks were awarded the donors. Several new members and associates were elected. The Chairman then announced that the president, Mr. J. H. Atherton, F.C.S., has resigned his position in consequence of leaving the town, and said the Council had presented him with an illuminated address as a slight recognition of the valuable services he had rendered the association.

the regret they felt at the loss the society had experienced. Then, in a few appropriate sentences, introduced Mr. F. H. Baker, who delivered an instructive lecture on electricity, illustrated by numerous interesting experiments. The lecture listened to with great attention, and a hearty vote of thanks given to Mr. Spenser at the close.

SOOTHING MEDICINES.

The coroner held an inquest here during the month on a child named Leonard Langsdale, aged 16 months.

The coroner, in addressing the jury, said that this inquiry had adjourned, so that a post-mortem should take place. The mother was too unwell to attend. She had been in the habit of giving deceased medicines from a druggist, the grandmother stating that it was Steedman's powder, and afterwards that it was a soothing powder and infants' preservative. Whatever it was, he did not think that a chemist and druggist should prepare or send medicine for a child without first seeing it. The coroner had not seen the deceased, but a little boy, eight years of age, was sent for the medicine. Was that a proper thing? The grandmother first told him that the boy had been supplied at various times, but now it turned out that he had been supplied twice. The child was attended some time back by Mr. Roberts, and as that gentleman had since made an examination of the body, the jury must depend principally on his evidence, and, for his own part, the Coroner could have no reliance on anything the grandmother said; not that she had wilful intention to mislead them, but she seemed to understand so little of medicine that had been done that he should advise them (the jury) to treat her statements as far away as possible.

Mr. Roberts, of Mount East Place, and grandmother of the deceased, said the mother of deceased was named Langsdale, and lived at her house. Deceased had had the measles some time and seemed to have had a cough since. No doctor had seen him since he had had the measles; but last week two doctors were fetched by a boy, eight years of age, from Mr. Bass's shop.

No one in Mr. Bass's shop saw the child. The mother of deceased had had several of the powders recently, and some given him on Thursday as well as some castor oil. The medicine the boy brought was called "Infant's Preservative." It was used had also soothing powder for the teeth. No other medicine had been given the child. About six drops of "Infant's Preservative" were given in a little warm water and he died the night previous to his death.

Euan Smith, surgeon, said in December last deceased was brought to him, and he prescribed for it, as it seemed to have a fever. He had since made an examination, and found him to have been a poorly nourished child, but the internal organs healthy, except the liver, which was slightly congested. Coroner: Do you know what Steedman's powders are? I think they are very much used, and contain opium. Witness, no, said the stomach was full of food, but there was a smell of opium. There were no external marks of violence or treatment. He next examined the brain, which he found considerably congested, and which he was of opinion was the cause of death.

Coroner: About these soothing powders—do they contain anything of a soothing quality? Yes, sir, too soothing, I should

think. Would opium be likely to cause the congestion? Opium would produce congestion in all cases, more or less. Witness then stated that the practice of a chemist prescribing for a child he had not seen was very dangerous.

The Coroner, in reviewing the evidence, said the jury must agree that the child had not been cared for as he ought to have been. There had been a carelessness and indifference as to what was given him in order to keep him quiet. The verdict of "Death from congestion of the brain" was recorded.

SHEFFIELD.

ACCIDENT TO A CHEMICAL ANALYST.—A shocking accident occurred on the 29th ult. to Mr. William Baker, a chemical analyst, of this town. On that evening he spent a few hours at the Sheffield Club, of which he was a member, and about eleven o'clock prepared to go home. He had been in the billiard-room, which is at the top of the building. During the evening he had been performing a number of athletic feats, and when he was in the billiard-room, instead of descending the stairs in the ordinary manner, he attempted to slide down the banisters. He fell only a very short distance when he lost his balance

and fell over. He pitched upon the banisters of the next flight, and from thence to the next banisters, and finally dashed his head foremost upon the tiled floor of the hall. His skull was terribly fractured, and a portion of his brain protruded. He was taken into one of the club-rooms, where he remained during the night, and the next morning he was removed to his residence. Mr. Baker still lives, and there seems to be a slight hope of his recovery.

FORMULÆ OF SECRET MEDICINES.

(Continued.)

The formulæ given below are translated (by special permission of the author) from a German collection compiled by Mr. Edward Hahn, Apotheker. The names following most of the formulæ are those of the authorities quoted for the analysis. The weights are almost invariably given in metric denominations. A gramme is equivalent to 15½ grains. The prices quoted are the nearest English equivalents to the original retail price.

EAU D'ATIRONA.—An elegant fluid cosmetic soap, by the use of which all imperfections of the skin will be easily and painlessly removed. It consists of 25 grammes of a spirituous tincture of cinnamon and cloves, 4 grammes soda soap, and a drop of peppermint oil. 30 grammes, 6½d.—Wittstein.

EAU DE BAHAMA.—A black dye for the hair. It is a solution of sugar of lead perfumed with oil of anise, and containing flowers of sulphur in suspension.—Reveil.

EAU DE BEAUTÉ, EAU DE PARIS SANS PAREILLE, OR EAU DE PRINCESSES (August Renard, Paris); with a German title, "Rühmlichst bekanntes cosmetisches Wasser genannt Prinzessen-Wasser." The well-known and renowned cosmetic, called Princesses' Water. To experience the brilliant effects of this marvellous fluid we need only, after washing, habitually pass a small sponge moistened with the fluid gently over the skin, and allow it to dry without rubbing. By so doing, our complexion will remain white, smooth, clear, and soft, even to extreme old age. Those, however, who are troubled with freckles, heat-spots, or any other eruption should use the water several times a day as directed. They need suffer no longer from any defect of the skin. Princesses' Water when shaken is a milk-white fluid contained in an oval bottle with a long neck, which holds 125 grammes. On standing, it deposits a white precipitate. It is made from 2.5 grammes calomel, .45 gramme corrosive sublimate (so altered by the added perfume that the usual tests do not reveal it), and 122 grammes orange-flower water.

EAU DE BOTOT.—A mouth wash. Tincture of cedar wood, 500 grammes; tincture of myrrh and tincture of rhatany, of each, 125 grammes; peppermint oil, 5 drops.—Winkler.

EAU DE CAPILLE (Kamprath & Schwartz)—A hair dye. A mixture of 16 grammes glycerine, 8 grammes hyposulphite of soda, 1 gramme sugar of lead (or an equivalent quantity of Liq. Plumbi subacet.), about 2 grammes precipitated sulphur, and 130 grammes water, perfumed with a small quantity of eau de cologne. 160 grammes, 2s.—Hager.

DR. CHATTAM'S EAU DE CHARBON (A. Ahnelt, Charlottenburg, the African traveller).—A prophylactic and specific against syphilis. 150 grammes of a slightly red fluid, consisting of a watery solution of carbolic acid, coloured with aniline and perfumed with 1 drop peppermint oil and 8 drops chloroform dissolved in 20 grammes spirit. 4s. 6d.—Hager.

EAU DE CYTHÈRE.—A hair dye. A solution of 4 parts chloride of lead and 8 parts crystallised hyposulphite of soda in 88 parts distilled water. 250 grammes, 8s.—Hager.

EAU DE FÉE—FAIRY WATER.—A NATURAL HAIRWASH (Lattke, Chemiker, Kiel).—Recommended as a preparation consisting solely of harmless vegetables. It consists mainly of a strong solution of nitrate of lead.—Himly.

EAU DES FÉES—FAIRY WATER.—A hair wash. A solution of 1½ parts lead sulphite in about 3 parts sodium hyposulphite, 7½ parts glycerine, and 88 parts water. 120 grammes, 4s. 9d. According to the directions for use, more than three bottles of 120 grammes of the Fairy Water should not be used before the

hair has been treated with Eau de Poppée, and, to raise it to the highest possible degree of beauty, with Huile régénératrice d'Hygie.—*Hager*.

EAU DE HÉBÉ.—For freckles. To be applied with a small sponge in the evening and washed off in the morning. Lemons, cut small, digested in a closed flask with distilled vinegar, lavender vinegar, oil of lemon, and rosmary, and filtered.

EAU DE JAVA ANTICHOLOÉRIQUE is a solution of camphor and carbolic acid in spirit.—*Casselmann*.

EAU DE LA FLORIDE.—A colourless fluid with a greenish yellow deposit, consisting of sugar of lead, 50 parts; flowers of sulphur, 20 parts; distilled water, 1,000 parts. 150 grammes, 9s.—*F. Eymael*.

EAU DE LÉCHELLE may be replaced by a filtered mixture of 200 parts aqua aromatica, 300 parts aqua dest., 10 parts acid. carbol., 10 parts ol. thymi, 20 parts acid. tannic.

EAU DE LYS DE LOUISE (Louise formerly—before the French war—Lohsé, Berlin).—A cosmetic, consisting of 2 grammes zinc oxide, 2 grammes prepared talc, 4 grammes glycerine, and 200 grammes rose water.—*Schädler*.

EAU DE MONT BLANC.—A hair dye. A solution of nitrate of silver.

EAU DE NAPLES.—Neapolitan washing solution. A mixture of 12 parts borax, 100 parts distilled water, 50 parts rose water, 1 part camphor, 4 parts tinct. benzoin. 100 grammes, 2s.—*W. Hildwein*.

EAU DENTIFRICE DE MALLARD.—Star anise, common anise, cinnamon, cloves, of each, 8 parts; guaiacum wood, 10 parts; brown cinchona, 6 parts; rose leaves, 5 parts; nutmegs, 2 parts, are placed in a displacement apparatus and percolated with 3 parts cochineal, 12–15 parts water, 1,000 parts sp. vini, sp. gr. 860. The tincture is displaced with water and 1,000 parts are mixed with 7 parts of a mixture of peppermint oil, spirit of scurvy grass, and tinct. of benzoin, allowed to stand and filtered.

EAU DENTIFRICE DES CORDILLÈRES.—An Indian recipe. 360 parts strong spirits, 330 parts water, 2½ parts extract of red or yellow cinchona, 1 part oil of cinnamon, 2 parts oil of cloves, 3 parts oil of anise, 5 parts oil of peppermint. 35 grammes, 2s. (in Paris 2 francs).—*Hager*.

EAU DE QUININE.—GLYCERINE HAIR WASH, WITH EXTRACT OF PERUVIAN BARK (A. Heinrich, Leipzig).—For removing scurf and strengthening the hair. 2 grammes balsam of Peru, 6 grammes castor oil, 60 grammes rum, 35 grammes water, 5 grammes tincture of red cinchona. 2s.—*Hager*.

EAU DE VIENNE.—A hair dye from Paris.—Two fluids, one of which is a solution of nitrate of silver in ammoniacal water, and the other a solution of pyrogallie acid.

EAU DU DOCTEUR SACHS (prepared by Gilbert, perfumer, Berlin).—For promoting the growth of the hair, preventing its turning grey, for protecting the scalp from all injurious influences, and for preserving it in a state of purity and health. A solution of castor oil in spirit containing picrotoxin.—*Dr. C. Schacht*.

EAU ÉCARLATE—SCARLET WATER (Bürdel).—For renovating red linen and woollen fabrics. Oxalium, 25 parts; soda, 16 parts; potash, 5 parts; water, coloured with cochineal and slightly perfumed, 1,000 parts. 100 grammes, 1s. 6d.—*Sauerwein*.

EAU LAJEUNE (A hair dye and pretended invention of the Parisian perfumers, Lajeune, Boulevard Montmartre 11).—An elegant pasteboard box, in which are three bottles of fluid and two bonehandled toothbrushes. No. 1 contains a clear fluid, consisting of pyrogallie acid 1·5 gramme, 3 gramme colouring matter of alkanet, 17·5 grammes spirit of wine, 27 grammes water. No. 2 is filled with a thick brown fluid, which from decomposition has produced a deposit sometimes brown, sometimes grey. This partly-decomposed fluid was originally a mixture of silver nitrate, 3·5 grammes; ammonia, 4·5 grammes; gum arabic or some similar mucilage, 2·5 grammes; distilled water, 23 grammes. No. 3, labelled "Fixateur," contains 7·5 grammes fluid, consisting of 5 gramme sodium sulphide, 7 grammes distilled water. The directions for use, translated into various languages, say—Dissolve 10 grammes subcarbonate of soda in half a litre of warm or cold rain water, and with this wash the grease from the hair. Afterwards rinse it in clear water, and dry it thoroughly with a cloth. Pour one part of fluid No. 1 into a

saucer, and with brush No. 1 apply it to the roots of the hair. Allow it two or three minutes to dry, then rub the hair with an old linen cloth to remove the superfluous moisture. Next repeat the operation, using fluid and brush No. 2, and without waiting wash the hair with warm or cold soapy water. This hair dye is quite harmless, and leaves no marks on the skin behind it. *To use it for the Beard.*—The process is the same as that for the hair, except that instead of the soda solution, ordinary soap is to be used to cleanse the beard from grease. It often happens that when the user of the dye has not taken ordinary care in cleansing the hair, the latter becomes of a false and unnatural tint. In this case the Fixateur should be used. A small sponge should be moistened with this and passed over the hair, which will make the colour natural and glossy. The Fixateur as well as the sponge must only be used in this way. It may be employed two days after the first operation without it being necessary to dye the hair anew. 9s.—*Hager*.

EAU TONIQUE DE CHALMIN is a perfumed solution of tannin.

EAU TONIQUE PARACRÈTE DES CHEVREUX (composée par Ch. min, parfumeur).—To prevent the falling off of the hair. Macerate some pieces of violet root for some days in 120 grammes rose water, filter, and add to the fluid 2 decigrammes sulphate of iron, 3 drops vinegar, 1·3 gramme each of tincture of benzoin and balsam of Peru, 7·5 grammes Provence oil, and 10 drops oil of bergamot. 120 grammes, 3s. 3d.—*Dr. Casselmann*.

EAU VIRGINALE (Chable).—Lead acetate, zinc sulphate, each 1 part; distilled water, 28 parts; eau de cologne, 12 parts. Dissolve and mix; allow to stand for a month and filter. A spoonful mixed with a glass of water to be used as a vaginal injection.—*Reveil*.

EDELENZIANWURZELSAFT—NORLE GENTIAN-ROOT JUICE—EXZIAN EXTRACT—EXTRACT OF GENTIAN (Hagspiel Brothers, Oberstaufen).—A water-clear, colourless Schnapps, which contains much fusel oil, and has had some of the spirit removed, distilled from gentian plant. A winebottle, containing about 7 grammes, 5s. 3d.—*Hager*.

IRON REDUCED BY ELECTRICITY (Collas, Paris).—Gelatin capsules of the size of a 2-grain pill, filled with powdered blacksmith scales (black oxide of iron). 100 capsules, containing about 0·7 to 0·8 grammes, cost 2s. 5d.—*Hager*.

FERRUGINOUS REMEDIES (Rob. Fraygang, Leipzig):—

Steel Brandy is an ordinary clear brownish brandy, containing a very little bitter matter, like the stomachic bitters of apothecaries, and mixed with about 1 per cent. of sugar. 10,000 parts contain about 1½ part oxide of iron. 470 grammes, 7d.

Steel Stomachic Bitters.—This is more aromatic, but otherwise similar to the steel brandy: 10,000 parts contain ¾ part iron oxide. 470 grammes, 1s.

Steel Liqueur is a clear, agreeably tasting liqueur, of the colour and containing much of the juice of raspberries. 10,000 parts contain nearly 1,200 of sugar and only 1 of iron oxide. 515 grammes, 1s. 6d.

Steel Syrup.—Syrup ferrugineux de Quinquina. A clear slightly violet coloured, thin, sweet fluid, containing spirit and sugar, of which cinchona bark may be an ingredient, though it is appreciable by neither taste nor tests. It contains 1½ part iron in 10,000 parts. 370 grammes, 1s. 6d.

Steel Bonbons.—Eighteen ordinary quadrangular bonbons, wrapped in white paper, for 5d. They contain a trace of iron oxide.

The iron present in the above preparations is in the form of citrate.—*Hager*.

SYRUP OF STEEL AND QUININE (Grimault, Paris).—For disordered digestion and chronic dysentery. Dissolve 10 grammes pyrophosphate of iron and sodium and 800 grammes sugar in 300 grammes water, by the aid of heat. Then dissolve 5 grammes spirituous extract of red cinchona in 10 grammes weak spirit; filter the solution and mix it with the cooled syrup.—*Hager*.

STEEL WINE (Gustav van Lipp, Cleve) is a solution of extract of ferri ponatium in 25 to 30 parts wine.—*Hager*.

ELECTRANODYN (Discovered and manufactured by A. Lipowitz).—For the cure of neuralgia, headache, migraine, faceache and apoplectic attacks. As a necklace for children for toothache as a preventative of quinsy, &c. A tissue paper cover

a nitrogenous material (pyroxylin or *düppelpapier*) by immersing in a mixture of sulphuric and nitric acid, and containing besides an insignificant proportion of wax and resin.—*Hager*.

ELECTROMOTIVE ESSENCE (Romershausen).—An embrocation restoring the suspended functions of the skin, by stimulating the flow of vital electricity and the functions of the nerves. A mixture of oils of turpentine and rosemary in the ninth dilution with alcohol, previously coloured red with some vegetable dyo. 100 grammes, 6d.—*Reithner*.

ELIXIR ANTIGOUTTEUX DE VILLETTE is a tincture of 100 parts of cinchona bark, 50 parts poppy petals, 25 parts saffron, 10 parts guaiacum in 4,000 parts rum, mixed with 2,500 parts of sarsaparilla.—*Hager*.

ELIXIR DE PEPsin DIGESTIF (Grimault & Co.).—For loss of appetite and disordered digestion. Contains pepsine, in quantities not at all proportionate to the price of the article. 100 grammes, 4s.

ELIXIR DES LAURIERS TONI-FEBRIFUGE AU QUINQUINA ET CAFE. A tonic febrifuge. Yellow cinchona (Königschina), 20 grammes; brown cinchona, 8 grammes; powdered coffee beans, slightly roasted, 16 grammes; wine, 250 grammes; sugar, 100 grammes; citric acid, 2.5 grammes. Boil once after standing some time in a warm place, and filter. Add to the filtered liquid 85 grammes sugar and 15 grammes spirit.

ELIXIR DE ST. HUBERT POUR LES CHASSEURS is a solution of 10 parts carbolic acid in 50 parts spirit.—*Casselmänn*.

ELIXIR FOR IMPOTENCE IN MALES (Dr. Ludwig Tiedemann).—Prepared from directions given in the *Puntsau* from genuine ginseng root. 135 grammes of a dark brown aromatic vinous liquid, prepared by digesting orange berries in wine. 4s. The embrocation is an equal quantity of a pleasantly-smelling liquid consisting of spirit with tincture of storax and a small quantity of volatile oils. 2s. The package, costing 7s., further contains directions for use, a medical diagnosis, and a pamphlet of medical advice by Dr. J. Müller.—*Hager*.

ELIXIR KAROLY POUR LES FOURRURES.—A solution of camphor 10 parts carbolic acid in strong spirit, mixed with a clear brown liquid tincture, perhaps tint. pyrethri rosei.—*Casselmänn*.

DR. WILKINSON'S ELIXIR OF CELERY.—For increasing, preserving, and producing vitality. Juniper berries, angelica root, sage root, of each, 1 part; spirit, 12 parts; orange-flower water, rosewater, of each, 4 parts; spring water, sufficient. Still 20 parts, and mix the distillate with 12 parts clarified honey. 250 grammes, 6s.—*Hager*.

BITTER ELIXIR OF LIFE (Jacob Wolff).—For strengthening constitution. A brandy prepared from 1 gramme aloes, 5 grammes cinnamon, 2.5 grammes sweet flag, 5 grammes angelica root, 6 gramme cake saffron, 10 grammes caramel, 5 grammes glycerine, 180 grammes spirit, 350 grammes water. 2s.—*Hager*.

ELIXIR TONIQUE ANTIGLAIREUX DE GUILLÉ.—A stomachic for diarrhoea. Calumba root, 90 parts; orris root, 10 parts; gentian root, 8 parts; jalap root, 1,500 parts; aloes, 10 parts; saffron, 60 parts; sulphate of quinine, 16 parts; tartar emetic, 2 parts; nitre, 16 parts; yellow sandal, 30 parts; sap prepared from barley sugar, rectified spirit, and water, of each, 11,000 parts. Macerate the drugs in spirit for 24 hours, then dissolve the salts in the water. Filter the liquids, mix and stand for 24 hours, then add the syrup, stand and filter next day.—*Reveil and Hager*.

ELIXIR VALERIANATIS AMMONICI (Goddard).—Valerianic acid, 10 grammes dissolved in 40 grammes distilled water and neutralised with ammonium carbonate. Add this to 35 grammes spirit, 50 grammes syrup, 1 drop bitter almond oil, 2 drops oil of orange peel, 30 grammes diluted bitter almond water, 10 grammes tincture of red sandal, 3 grammes tincture of orange peel, 2 grammes burnt sugar, and filter.

JARRO'S EMAIL DE PARIS (Jarred & Renf, Paris).—A preparation for washing. A red alcoholic liquid free from hurtful salts.

EMBROCATION REFRA'CHISSANTE CONTRE ENTORSES ET CONTUSIONS RECENTES (Hibon & Smith).—An ointment for blows, bruises, and sprains in domestic animals. Mix in a bottle 50 grammes water with 15 to 30 grammes pyroligneous acid, ordinary vinegar, and the whites of two eggs. Add by degrees 10 grammes spirit and 24 grammes turpentine oil, shaking vigorously till well mixed. 200 grammes, 2s.—*Hager*.

NAMES OF BRITISH MEDICINAL PLANTS.

By W. G. PIPER, F.L.S.

Datura.

DATURA is the name of an extensive genus of plants, most of which inhabit the warmer regions of the globe. One of them, *Datura Stramonium*, L., is remarkable, perhaps more than any other plant that is not aquatic, for the wide extent of its range. Several species are of pharmaceutical interest. Besides the *D. Stramonium*, L., whose capsules are erect, the nearly allied *D. Tatula*, L., is known by its use in asthma. *D. alba*, Nees, has pendulous capsules and finds a place in the pharmacopœia of India. *D. fastuosa* L., is hardly distinct from it. All are more or less distinguished in appearance, and poisonous in properties. Linnæus, having bound himself by a canon that barbarous words should not be used as names of plants, deceived by its classical form, and forgetting or ignoring its pedigree, attempted to identify this word with the mediæval Latin *datura*, a gift, on the ground that the plant was given in medicine. (*Datura* a gift, Ducange from *dare* to give). Verily as there was no reason, he made one. Why the thornapple is more given than other drugs still remains unexplained.

From the latter half of the sixteenth century to the present time, the word, in one or other of its forms, has continually recurred in European literature chiefly, but not exclusively in works relating to India.

Garcia del Huerto, more commonly known as *Garcias d'Orta*, the Spanish writer on the history of the spices and simples of the Indies, tells us in 1563, that the flower or its seed is mixed by thieves with the food of those they wish to rob; "as many as take the drug are so distracted in mind, and dissolved in laughter, that they willingly allow anyone to plunder them. This intoxication lasts four-and-twenty hours." . . . Many persons take the herb to enjoy the laughter and relaxation of mind it produces, but this practice is neither safe nor commendable.* Robert Burton in his well-known "Anatomy of Melancholy" (1621) quotes this passage.

Jan Huygen van Linschotten, a Dutchman, finding he had nothing to occupy him in his own country, started on his voyages in 1576, with the object of learning, and subsequently teaching his countrymen what he could about the outside world. In 1596, he published in Dutch, his travels in the Indies. On page 60 of the English translation (1598), we are told:—"The Portuguese and Mestico women are very luxurious and unchaste. They have an hearbe called *Deutroa*, which beareth a seed, whereof bruising out the sap, they put it into a cup or other vessel and give it to their husbands eyther in meate or drinke, and presently, therewith, the man is as though he were half-out of his wits, and without feeling, or els drunk, doing nothing but laugh; and sometime it taketh him sleeping, whereby he lieth like a dead man, so that in his presence they may do what they will, and take their pleasure with their friends, and the husband never know of it. In which sort he continueth foure-and-twentie houres long; but if they wash his feete with colde water, he presently reuiueeth, and knoweth nothing thereof, but thinketh he had slept." Doctor Paludanus "the learned Phisitian of Enckhuy," in commenting on this passage saith: "*Deutroa* [is] of some called *Tacula*, of others *Datura* . . . in Canara *Datura* . . . in Persia and Turkey *Datula* . . . If any man reccaueh or eateth but halfo a dramme of this seed, hee is for a time bereaued of his wits, and taken with an vnmeasurable laughter." On page 109 of the same work, Linschotten gives a chapter "of the hearbo *Dutroa*." After describing the plant in vigorous, though untechnical language, and repeating the information he had previously given, he adds: "This hearbe the slaues vse likewise to giue their masters and mistresses, thereby to robbe them, and breake open their chests, which is oftentimes done. . . . If a man giue too much thereof, hee may bring a man to his ends, vnlesse some strong and present remedie be taken by some conuenterpoysen or Purgation." Dr. Paludanus here remarks that although it is forbidden by law "to be gathered, or once vsed," the legislators, i.e., the men, are its most frequent victims, for their wives, the better to carry out their licentious purposes, give it to them in their food. Christoval Acosta, writing in 1578, says of the *Datura*, that

the inhabitants of Malabar call it *Datiro* or *Datyro*—the Persians and Turks, *Datula*; the Portuguese *Datura*. Women of bad character were accustomed to take half a dram of the powdered seeds in wine, and regarded it as one of their most precious treasures. The poor wretches who took it, laughed or wept, slept, or conversed rationally, but when they recovered, knew nothing that had occurred; so that for a time they could forget their circumstances. They could adjust the dose to intoxicate for any desired time, and though Acosta had seen several cases, he had not known one to be fatal. Clusius in his notes on this (1582), says that the Turks use the plant, and call it *Tatula*.

Samuel Purchas,* a learned English divine, who compiled under the title of "His Pilgrim," an account of various countries (early in seventeenth century), says of India, "they have an hearbe, called *Durroa*, which causeth distraction. Iarrie† calls it *Doturo*, and saith that Pinnerus, the Jesuite, and his family at Lahor, were, by means of this hearbe (given them by a theevish servant), distracted, and the goods then carried out of their house."

Dr. John Fryer, who visited India during the reign of Aurungzebe (1672-81), gives an account of the way in which state offences were punished by that Monarch. The offenders were confined in a place called the Post, from the punishment inflicted there, and by doses, 'compulsory at first, of Bung (Indian hemp), "mingled with *Datry*, the deadliest sort of *Solanum*, or Nightshade, named Post," they were forced to acquire the habit of taking it. This soon reduces them to a state of idiocy. "Then they are brought into the inner lodging of the house, in which folding doors open upon delicious gardens, with apes, and cats, dogs, and monkeys are their attendants, with whom they maintain their dialogues, exercising over them their humour of an assassin, usurper, miser, or what their *Genius* led them to whilst themselves. After this manner they are imprisoned during the king's pleasure, or he orders their cure, to restore them to their senses again; which otherwise, after the spirits are tired by a restless appetite of doing, and in the meantime have not a suitable recruit, they linger to a lasting leanness into the shades which alive they represented." Post is, properly speaking, an infusion of poppy heads, and Fryer must be mistaken in one of the two names. He tells us that Aurungzebe adopted this grotesquely horrible mode of punishment, that he might not be thought a bloody tyrant. He also says that the friends of Indian widows doomed to the suttee, gave them *datry* so that the victim was half mad before she threw herself on the blazing pile.

Samuel Butler in "Hudibras," part iii. (1684), makes one of his characters say:—

"O hold for pity, Sir,
I am too great a sufferer.
Abused as you have been by a witch,
But conjured into a worse caprich,
Who sends me out on many a jaunt,
Old houses in the night to haunt.

Make doctors and their pinks with *dewtry*,
Commit fantastical adwotry."

Dr. R. C. A. Prior in his "Popular Names of British Plants," derives this word *dewtry* (which has appeared in a modern Portuguese and English dictionary as *dutrey*), directly from *datura*. It seems much more likely that the *deutroa* of Linschotten, or some similar form is its immediate ancestor. *Datura* would seem to have come by an eastern route through Arabia or Turkey, while *dewtry* probably came round the Cape of Good Hope with the Portuguese or English voyagers.

In the "Ephemerides Naturæ curiosorum of the Cæsar Leopold Academy, 1689," John Daniel Geyer published a short disquisition "De semina Indorum *Dotter* seu *datura*." This is the oddest form of the word we have met with. In the "Scowrers," a drama by Shadwell (1691), we have:—

Oh, ladies, have pity on me! I believe some rogue that had a mind to marry me gave me *dutery* last night, and I was disguised [i.e. drunk], and lost the key too, and my lady has discharged me to beg in my old age.

In the weighty "Herbarium Amboinense" of Rumphius (1741-55, lib. 18, cap. 49, p. 242), three species of *Dutra* or *Stramonium indica* are described. *Dutra* is here used as the Latin name. We are told that by the Portuguese it is called *Dutroa*; by the Malays *dutra*, in Amboyna *Lutroa*.

From these and various other sources, really too numerous to

be mentioned here, we learn that although found in most European, and many Eastern languages, the various forms of *datura** can be explained from none of them. The original source of all of them is the Sanscrit in which we find that *dhustura* and *dhustura* are names for *D. fastuosa*; *dhustura*, and *chooskura*, of *D. Metel*, *dhattura* and *dhatturaka* of *D. alba*. J. Nimmo, in "John Graham's Catalogue of Bombay Plants" (1839, p. 141), says that this word means a trumpet. If this were the case, the shape of the flowers would have given rise to the name. But the Sanscrit Dictionaries do not give this meaning, and if the word really has it, trumpets may have been so called, because they resembled the flowers. In the "Taleef Shereef; or Indian Materia Medica," it is said "the flower is of the shape of the Toorhee," a wind instrument or trumpet.

The root meaning of *dhustura* is not given in Monier Williams' Sanscrit Dictionary, perhaps the most useful and recent work of the kind, but as both *dhustura* and *chooskura* bear a similar relation to distinct words, having the general meaning of to embellish, to make splendid, we may, perhaps, conclude that they are synonymous with the specific name *fastuosa*, magnificent, beautiful, referring to the splendid flowers, purple without, and milky within. If this is the case, they are undoubtedly, though distantly, connected with the English words bristle and frost. The chain of words uniting them is too long for us to follow up here.

The idea of beauty in connection with the plant was soon brought into contest with others of a far more sinister tendency. The specific title of the commonest Indian species *Datura fastuosa* is *krûradhoorturaka*. *Krûra* is related to the Sanscrit words, *kravis* and *kravya*, and to the Latin, *crûor*, *cruentus*, *crudus*, the general meaning being flesh, raw flesh, blood, carrion. *Krûra* itself bears several meanings, as, wounded . . . bloody, raw, cruel . . . ferocious . . . hard-hearted . . . formidable, terrible, none of which are closely connected with our modern ideas of beauty.

The other Sanscrit names of the plant which bear a similar meaning, we must leave for a time. The changes which the meaning of the Hindostani word has undergone in its derivatives will sufficiently illustrate the general feeling with which the plant is regarded in India, and with that we must stop. From the Hindustani *dhattura* itself, a derivative of the Sanscrit *dhattura*, the word *dhatturiyâ* which follows it in the Dictionaries has been derived. This means a cheat and impostor. Thirty years ago, Bombay was infested by a class of miscreants, called *dhatooreas*, or professional road poisoners, their name being taken from that of the drug, and being a special and comparatively recent application of the word we have just mentioned. These men make their living by poisoning travellers to rob them of their ornaments and goods. The crime in Benares and Cawnpore is known as *dhatoora thuggee*, and in Western India as *Mawa*. A considerable space in Dr. Norman Chevers' "Medical Jurisprudence of Beogal" is devoted to their history, and from this source (p. 152, *et seq.*) we have drawn most of our facts.

So early as 1609, Macnaughten mentions a case of poisoning by them, and the first law against them was enacted in 1817.

Dhatooreas are not a class, or caste, like the Thugs, but people of all conditions of life adopt the profession, some for a time, to relieve the ennui caused by more humdrum occupations, others for life; others again become road poisoners by inheritance. Sometimes an old man or woman, unfit for most other things, will make a comfortable living by this means.

The poison they employ is generally the seed of the *dhatoora* plant (*D. alba*, *D. fastuosa*, or *D. ferax*). They obtain it from the druggists, or in default, can gather it for themselves by the roadside, or from the nearest garden. The powdered seeds are almost tasteless, so that like arsenic, they are not often detected when mixed with food. They are prepared by the poisoners in several ways. The stock of one from Upper India contained the seeds whole; the seeds parched, powdered and prepared but not yet cleaned or fit to mix with food; the seeds fully

* Dr. Norman Chevers' "Medical Jurisprudence of Bengal."
† Pierre du Iarrie, a Jesuit, who published "Une Histoire des choses plus memorables . . . dans les Indes Orientales," 1608-14.

* English forms are: *Deitry*, *dutrey*, *deuterey*, *datry*, *durroa*, *doturo*. Portuguese (extinct): *Datura*, *deutroa*, *dutroa*; (modern): *deutroa*, *dutro*, *dutroa*. Spanish (extinct): *Datura*, *dutroa*. Italian (*vide Nemnich solum*): *Datura*. Greek (ancient), not found; (modern): *Tatoulas*, *tatoula*. Arabic: *Tatoul*, *datura*, *tâtûrah*, *tâtûret*, *tâtûlet* (according to Forskahl, *Tâtûrah* is the Arabic word used in Egypt, not for *datura*, but for *hyoscyamus tatûrah* Forsk.). In Turkish (which admits many Arabic words), *datula*, *datura*, *tatula*. In Persian (which does the same): *Datula* and *tatula*. In Amboyna: *Lutroa*. Canarese: *Datiro*, *datyro*, *datura*, *duturo*. Malay: *Dutra*. Brahmans, of Malabar: *Dotiro*, *datiro*. Gangetic provinces: *Dutro*, *dhuturo*. Hindustani: *Dhatura*, *dhatoora*. Hindery: *Dhatoora*. Telugoo: *Daturamu*. Mongrel forms: *Tattura*, *tatura*, *kicula*, *datyro*, *dotter*.

pared for use—dose, $\frac{1}{2}$ tolah (90 grains); the distilled essence of datura to be mixed with tobacco, sugar, &c., dose, drops, and also two kinds of food already poisoned. The culiar habits of native travellers make the administration of the drug comparatively easy. It is the custom when journeying from town to town to unite with any party going the same way, and apparently of the same caste, to lessen the expenses of travelling and the danger of attacks by wild animals. A single traveller is always allowed with little enquiry to join himself to a company. They then smoke together, and cook, and eat their meals in public by the roadside. The dhatooreas in this way are admitted to the company of any travellers of the same caste they disguise themselves to resemble. By worming themselves into the general confidence, they may have an opportunity of drugging the flour while fetching it from the mill; they make undertake the cooking, or supply their new-found friends with tobacco; or in honour of some pretended friendly event, they may give the party a feast, at which the chief dishes will be drugged. However, they rarely prosecute their business on so large a scale. More often a single man joins a party of two, which he will poison at the first opportunity. Their victims are generally of the poorer class, and a case is recorded in which a poor old fakier or mendicant, and his little son were drugged for the sake of an old blanket, their only possession. The boy died, but the old man recovered after three days' intoxication. It is evident that with such profits on a single transaction, they must poison many persons to make a comfortable living. One young man less than 21 years of age, who had adopted the profession, because it was "very well at home in his village," had, in this way, poisoned at least twenty-seven persons in eighteen months. The real number is probably greater.

Children are or were frequently enticed by poisonous sweetmeats, and when intoxicated, were robbed of their ornaments. In 1868, a number of persons, apparently Brahmans, were going about Bengal distributing poisoned sweetmeats gratis, with no apparent object of thought of gain. During 1849, fifty-one cases of datura poisoning were treated at the native general hospital, Bombay, and as the number discovered in time for this to be possible is comparatively small, we can, at least, imagine that at a large number of cases really occurred.

Unlike the Thug, or professional murderers, the road poisoners are actuated by no religious motive, and have no extensive organisation among themselves. Indeed, it is believed that two small parties never unite or hold connection with one another. This makes the detection and suppression of the crime more difficult than that of Thuggism. When one band of Thugs turned "approver," or Queen's evidence, the whole band could frequently be captured, or destroyed, by the information he furnished. This is not the case with the dhatooreas who owe some of their impunity to their isolation. Mr. Chevers seems to infer, that of recent years the crime has become less frequent. It is possible that it may again become popular. In some cases, it has been proved that the head of a band of poisoners has learnt the art in the convict settlements while undergoing punishment for some different class of offence.

AMERICAN ESSENTIAL OILS.

WE take the following items from a report on the Philadelphia Exhibition published by M. Achille Jonas, legatö from the Belgian Government. After mentioning the several exhibits the author says:—

The oils stamped "H. G. Hotchkiss" are the most esteemed. I apply ourselves to them especially as representing perfect specimens of American volatile oils.

More than 4,000 acres of land have been employed in the United States in the cultivation of peppermint. This plant needs suitable sun and assiduous care, and it frequently happens that by neglect in cultivation all kinds of strange herbs creep among the plants of mint—considerable quantities of room weed, or mares' tails being among them. The seeds of this plant furnish by distillation a considerable proportion of volatile oil, which impairs the naturally fresh, penetrating, and delicious taste of the oil of peppermint. Moreover, the American peppermint oil is very often adulterated with oil of turpentine, which is added during or after distillation. The oil of peppermint of H. G. Hotchkiss is, on the contrary, much esteemed and known throughout the whole world, and for more

than thirty-five years it has been in all the Universal and International Exhibitions the object of the most serious observation, and the manufacturers have above all gathered the most flattering praise, as well as the highest honorary awards, and let us add the most deserved ones.

Mr. H. G. Hotchkiss commenced the cultivation of mint in 1841, in the neighbourhood of Lyons, Wayne County, New York. He produced at first 1,000 to 2,000 lbs. annually, and, thanks to his intelligent method of cultivation and the minute care which he employed in the distillation of the plants, the oil of his stamp was soon celebrated as the finest, the purest, and the best in the United States. Mr. H. G. Hotchkiss afterwards extended this industry considerably. He has made large new plantations, and a great part of the land which he purchased can be submerged at will during the winter in order to preserve the plants from the severe cold. Hundreds of labourers spend their care upon the fragrant herbs which cover this large property. One acre of land produces nearly 20 lbs. of mint, and Mr. H. G. Hotchkiss sends yearly more than 50,000 lbs. (the American lb. is 453 grammes) of this valuable liquid to his different agents, who distribute it through the whole world.

In the pure state the oil of American mint is colourless, clear, and possessed of all the properties of the English oil, except that its odour and its taste are a little less pungent. Nevertheless large quantities of this oil are exported to London, of which a great part is purified by the process which we have before described in speaking of the Mitcham oil, to be rectified some years after its sale, and marked as an English product.

The oil of peppermint loses its herbaceous odour by age, and its aroma becomes more delicate; but after a certain number of years it thickens, and its colour becomes reddish-yellow. Exposed for a long time to the air it finally becomes entirely resinous, though Mr. H. G. Hotchkiss exhibited an oil preserved for more than thirty years shut up in glass bottles covered with a skin, the colour of which was very dark, its odour, however, being characteristic and its taste fresh, and partaking strongly of the peppermint herb.

VAN HELMONT AND THE IATRO-CHEMICAL MEDICAL SCHOOL.

By W. B. A. Scott, M.D.

THE subjects mentioned in the title of this paper would furnish matter for a volume rather than for an article; but, since life is short, though art is long, it is usually necessary, as in the present instance, to make brevity our paramount object, even at some sacrifice of completeness. A treatise which should profess to deal at all exhaustively with the theme before us might, perhaps, have been regarded as an article in the time of Mahalaleel or Jared, but, in these days, when four-score years are esteemed longevity, it would be characterised rather as a bulky tomo. This must be my apology for the exceedingly superficial nature of the following remarks.

While it is comparatively easy to assign what may with sufficient propriety be called (in common parlance) an origin to the iatro-mathematical school, the case is widely different with the iatro-chemical. Traces of the latter are to be found even among the Arabians, whose language has left such distinct indications of its influence upon chemical nomenclature. The recognition of the distinction between acids and alkalis (about A.D. 1614) for the first time furnished this school with anything of a scientific basis. Midway between these two extremes—not in point of time, but of progress—comes the doctrine of "ferments," which found its first systematic development in the teaching of Van Helmont, though, it must be remembered, he did not stop here, but availed himself, to some extent, of the recognised distinction between acids and alkalis, as will be seen in the sequel. The labours of Basil Valentine, Paracelsus, and the Spagyrist doubtless contributed to bring chemical science (if we may here employ the term science) to a condition in which Van Helmont's doctrines were possible, and we shall find in the sequel that his teaching coincided in many points with that of Paracelsus, of whom he was a devoted admirer, while Van Helmont himself never formally proclaimed the characteristic dogmas of the iatro-chemical school; still, since those dogmas seem to have taken their rise from the modifications which the

doctrines of Van Helmont underwent at the hands of others, he may fairly be taken as the putative or adoptive father of a school whose ancestry is in reality as indefinite as that of Melchizedek. A short notice of the life of Van Helmont must prove interesting to any who may either be unacquainted with it or have forgotten its details. This, with the consideration of his doctrines and comparison of the same with those of some of his predecessors, will form the subject of the present paper, while, in the ensuing, I shall endeavour to trace the history and development of the iatro-chemical school under his successors.

John Baptista Van Helmont was born at Brussels in 1577, the son of a wealthy nobleman of Brabant. Proceeding at an early age to the University of Louvain, he completed his philosophical curriculum by the time he was 17, when he ought, in due course, to have proceeded to the degree of Master of Arts. But having, even at this early age, perceived the vanity and futility of such academical distinctions, he resolved on renouncing the same, and at once placed himself under the instructions of the celebrated Jesuit, Martin del Rio, with whom he studied the various systems of ancient philosophy—of the scholastic philosophy he had already had more than enough at Louvain. His new instructor, although including magic in his curriculum, pleased Van Helmont little better than his old university; and he seems at this period of his life to have fallen into a state of despondency, not unlike that which Mr. J. S. Mill describes himself as having experienced, though from a different cause. From this he was aroused by perusing the writings of Tauler* and Thomas à Kempis, which opportunely fell in his way. These treatises, especially the former, doubtless contributed to impart to Van Helmont that element of mysticism which is so manifest in his writings, and to the reception of which he seems to have been naturally predisposed. But this—which, from a scientific point of view, may be regarded as a defect—was far more than compensated by the religious fervour which animated his conduct throughout the remainder of his life. He resolved to devote himself to the medical profession. Whether from the fact that the prejudices of his age and country regarded the practice of medicine as derogatory to a man of rank and wealth, as Dr. Russell supposes, or, as seems more probable, in literal obedience to the command addressed to the ruler (St. Luke xviii. 22), he formally renounced all his possessions and the dignities which were the appurtenance of his birth. For this act of self-abnegation he believed himself to be rewarded with the Beatific Vision, and throughout life he conceived that various supernatural manifestations were vouchsafed to him. He entered on his medical career by the careful study of the works of Hippocrates and Galen, which he perused in unquestioning faith. But, having contracted the itch, and finding the Galenic treatment injurious and in no respect beneficial, he applied the dictum *fulsum in uno, fulsum in omnibus* (which is applicable to all those to whom infallibility is ascribed, either by themselves or others), to the humoral pathology, and rejected it altogether. He next had recourse to the writings of Paracelsus; but, while these manifestly exerted a strong and lasting influence on his mind, their violence, crudity, and inconsistency could not but repel the mild, learned, and thoughtful Van Helmont, and prevent him resting satisfied with the doctrines of his predecessor as the foundation of a reformed school of medicine. They served, however, to animate his zeal for the installation of such a school, to which he now devoted his powers. With some apparent inconsistency he about this time took the degree of Doctor of Medicine; he had sufficiently proved that his contempt for such titular distinctions was no mere profession, not merely by declining the master's degree at Louvain, but by refusing the more profitable honour of a canonicate. After this he made several journeys through France and Italy, marrying, on his return, a wealthy lady of Brabant. He spent the rest of his life at his estate of Vilvorde, constantly engaged in scientific pursuits, and died there in 1644, leaving to his son the task of collecting and editing his works, a task which the political disturbances of the period caused to be somewhat hastily and perfunctorily executed. The cause of his death was pleurisy, which, according to his scurrilous opponent Guy Patin,† resulted in mania

"owing to Van Helmont's opposition to blood-letting." From the testimony of those who attended Van Helmont on his death-bed, we learn that this, like a good many of Guy Patin's other assertions, was entirely false.

With many of Van Helmont's theories we need not here particularly concern ourselves. Thus, it is unnecessary to determine how far he is to be understood literally in his opposition to the naturalistic interpretation of natural phenomena, and in his assertions that earthquakes only occur when the Angel of the Lord strikes the earth—that thunder is the voice of the evil spirit, constrained to obey the Almighty's will. Of a piece with this is his ascribing many diseases to Satanic influence, exerted either directly or indirectly through the agency of witches. All this only interests us as showing the superstitions which surrounded the cradle of the iatro-chemical school, and so enabling us to understand the wild and extravagant theories which characterised that school throughout the whole period of its existence.

The fundamental doctrine of Van Helmont is that of the *Archeus*, with respect to which it is very difficult to distinguish between his views and those of Paracelsus, although he himself denied their identity. This *Archeus* forms all bodies out of water, by the agency of certain "ferments." It is not the "form," since it exists independently of the elements, but is the energising principle of development and life. Here Van Helmont discovers a forgetfulness of the precise signification of the Aristotelian "form," which is not *forma*, i.e. *μορφή*, but *ἐνέργεια*; the difference may be expressed in English by the distinction between the actual form which anything has assumed, and formative power. The *Archeus* is something which acts from without, and is therefore not to be confounded with the "inherent power of development" * which some have attributed to matter. He adopted the Thalesian doctrine of the aqueous origin of all things, recognising only two elements, air and water. Fire he rejected from the number of the elements as being a composite body, and earth he regarded as a mere derivative of water. Fire and air, he taught, are unalterable by heat, and although water may be vaporised, steam is not to be confused with air. He remarked, truly enough, that solid (earthy) substances, before they can pass as nutriment into organised bodies assume a fluid (aqueous) form, and founded thereon an argument in support of the Thalesian hypothesis. From water are derived the three Paracelsian chemical principles, salt, quicksilver and sulphur, to which, however, he denies all inherent activity, or any right to be regarded as a "protoplasm," deriding the theories of Paracelsus with respect to the same, perhaps from not duly remembering that in the writings of Paracelsus these are mere arbitrary appellations, having no reference to NaCl, Hg, S, or any other definite substance. Van Helmont denied that the Paracelsian chemical principles exist *as such* in the body, asserting that they are merely eluced therefrom in virtue of the changes effected by fire. Perhaps, if for "fire" we substitute "chemical action," something similar may be said of many "proximate principles" of later times.

It is very difficult to understand the nature of Van Helmont's "ferment." He says it is neither an "accident" nor a "substance." It emits an odour which attracts the "formative spirit" of the *Archeus* (surely this is a *plemism*) or *aura vitalis*, and thus the various bodies take their rise. He denies any peculiarity of composition to the protoplasm,† or the necessity of any kind of seed, having been, in fact, an advocate of a doctrine of spontaneous generation, though one by no means identical with that of Pineau and Pouchet. He supports his assertion by alleging that he had himself seen a scorpion generated from crushed Basil-root. In short, the nature of the material substratum is of no consequence; the presence of a "ferment" and the action of the *Archeus* are all in all.

give antimony and emetic wine are charlatans. . . . They are generally frocked or unfrocked monks, itinerant quacks (*circulatori*) and mountebanks, seekers after the philosophers' stone, and some people about the court who pretend to have secrets and boast like asses among apes." The word *circulatori* is interesting; its original meaning is as above translated, but it was applied, in derisive metonymy, to the believers in the circulation of the blood by those who rejected Harvey's doctrine. The word certainly afforded an opportunity too tempting to be resisted.

* This has always seemed to me the meaning of the celebrated *ἐνέργεια* of Aristotle, which has been so vexed a subject of contention. However, as Helmontus Barburnus is said to have conjured up the devil in vain in order to learn from him the signification of the word, I, who have no such supernatural tutor, do not presume to speak positively on the subject.

† It would seem more strictly accurate to say that he regarded the *Archeus* as capable of forming protoplasm out of any substance whatever, that it was a matter of indifference what kind of substance the *Archeus* operated on at the first instance.

* John Tauler (1294-1361) was a celebrated German divine, who at an early age became a Dominican monk, and is regarded as the founder of mystic theology in Germany. Curiously enough, one of his most celebrated works has the same title as that of Thomas à Kempis. To the general reader he is of interest as the father of German prose literature; to the theologian, as in some measure the predecessor of Luther.

† As a specimen of the medical courtesy of the seventeenth century I subjoin the following extract from one of Guy Patin's letters:—"Those who

ter in a state of fermentation evolves *gas*—a word introduced by Van Helmont, and derived by some from the German *Gas*, but more probably from *gäsehen*, which has the secondary meaning, to ferment, cognate with *Gäsch*, ferment, yeast. Gas, he describes, as intermediate between spirit and matter, and calls it the principle of activity, life, and generation, *because its production is the first result of the action of the Archeus*, which is very logical, inasmuch as the *Archeus* itself would, on his showing, be better entitled to be termed such a principle, in fact, is elsewhere so-called by Van Helmont himself. Later on he compares this “gas” to the “chaos” of the ancients, out of which all things were formed, implying that he regarded it very much as what we should call protoplasm; indeed, he tells us that it contains the three chemical elements, and is pure spirit, but intermediate between spirit and matter. His reasoning on this subject is very confused, but he is entitled to praise for having clearly indicated the difference between the kinds of gases, as, for example, CO₂, which he called *gas tre*, and H, which latter, although first carefully examined by Lavoisier, had been in some degree known for many ages.

The motor principle of the stars he designated *Blas* (from *blow*), and while he rejected the ordinary astrology, he recognised a certain influence of sidereal bodies, and of this on terrestrial objects. Thus, he taught that each of the stars has its own star, and its special *blas*. But, while so far coinciding at one with Paracelsus, he differed from that writer inasmuch as he denied the analogies between the human body and the external world—between the “microcosm” and the “macrocosm.” Vegetables and minerals have each a ferment peculiar to themselves; the former, like Paracelsus, he termed *es*, the latter *Bur*.*

In the human being Van Helmont seems to have identified the *Archeus* with the soul, the seat of which he placed in the stomach. The reason he gives for such localisation is very characteristic. On one occasion, after taking aconite, he experienced an agreeable sensation in the stomach: his head became inactive, while all thought and understanding seemed referred to the gastric organ. The understanding also is seated in the stomach, the will in the heart, memory in the spleen, imagination in the spleen.

The theories of Van Helmont respecting digestion present a strange medley of transcendental vagaries and simple matter-of-fact truth and error. Thus, he speaks of the stomach, especially pyloric orifice, and the spleen as being principally concerned with digestion, and forming a “duumvirate” under the immediate action of the *Archeus*. A sour fluid (gastric juice) is secreted under the action of the *Archeus*, and this dissolves the food. This is the first digestion. Warmth is not necessary for the digestive process, for it is retarded in fevers, while it goes on quite well in blooded animals. The food in a state of acid solution passes into the duodenum, where it is neutralised by the bile. This is the second digestion. The third takes place in the mesenteric vessels. So far all is well enough; but we are next told that a fourth digestion occurs in the heart, *where, by the passage of vital spirits from the left to the right ventricle, through the perforated septum, the blood in the vena cava becomes yellower and more volatile*. We hear still more of our old friends the “vital spirits,” for we are told that the fifth digestion consists in the transformation of the arterial blood into vital spirits, which pass chiefly in the brain. The sixth digestion consists in the changes which the aliment undergoes in each part of the body, whereby the tissues are regenerated, and the nutritive material is elaborated by the *Archeus*. There are also six digestions in the liver. In the seventh place, *Nature keeps her Sabbath*.

With respect to anatomy, proper and pathological, Van Helmont speaks most rationally; strongly asserting the utility of anatomical studies, and particularly regretting the neglect of pursuing the latter by means of autopsies. But his own pathological theories are laughable in the extreme. All diseases arise from the anger, fear, or other strong emotions of the *Archeus*. The *Archeus* sometimes sends the gastric “ferment” to wrong places by mistake, and so occasions gout, apoplexy, &c. In pneumonia, the “raging” *Archeus* sends the gastric juice into the lungs. He is not always very consistent, for he tells us that the cause of dropsy is the “wrath” of the

Archeus at the diminished secretion of the urine. Now, since this “diminished secretion of urine” must evidently have preceded the “wrath” which it occasioned on the part of the *Archeus*, it must have originated by a process of spontaneous generation, without any antecedent action of the *Archeus*. All fevers have their seat in the “duumvirate;” febrile shivering is caused by the “terror and trembling” of the *Archeus*; febrile heat by its “fury and extravagance.” The origin of catarrhal diseases he ascribes to an overflow of *latex*, occasioned by mistakes on the part of the *Archeus*—the said *latex* being defined as the “red serum which has not as yet acquired the saline properties of the blood,” an excellent definition, the only defect of which is that it lacks any corresponding object. The mucus evacuated in coughs and catarrhs consists of the surplus of the food which adheres to the upper surface of the palate.

Van Helmont made a great advance on Paracelsus with respect to the diseases which the latter ascribed to “tartar.” In the first place, he pointed out that vesical calculi to which Paracelsus often referred do not in the least resemble the deposit from wine known as tartar, and that therefore the name ought to be rejected. He proposed to substitute the term *Dualech* (of which I can give no explanation) to indicate the condition favourable to calculous deposits, and he described the mode of deposition better than any of his predecessors had done. In his theory of inflammation he calls special attention to the local attraction of blood, the attractive power or *spina* existing in the inflamed tissues themselves, and, curiously enough, he admits that in pulmonary inflammations the *spina* may arise from peculiarities in the inspired air, as well as from affections of the *Archeus*. He strongly insists that some diseases are purely local, even including diarrhoea under this head. Flatulence he ascribes to laziness on the part of the *Archeus*.

In the practice of medicine Van Helmont naturally rejected all modes of treatment founded on the doctrines of the “primary or secondary qualities,” “humours,” and so forth, and aimed at attacking the *Archeus* itself, which he regarded as the prime source of all physiological and pathological phenomena. With this view he relied to some extent on remedies addressed to the imagination, as spells—though with regard to these in particular he says, “*magis admior quam applico*.” He also believed in the universal medicine, which he called liquor *alkahest*, *lili*, and by various other names. The drugs he chiefly used were mercury, antimony, opium, and wine, which, he assures us, are particularly agreeable to the *Archeus* when raging in fever. He rejected blood-letting *in toto*, not only on account of its weakening effects, but also because he denied that the blood, so long as it was contained in the vessels, ever held deleterious ingredients, while any local error of excess or defect he ascribed to “mistakes” on the part of the *Archeus*. He disapproved in general of other evacuations, remarking that they did not attack the seat of the disease, *i.e.*, the *Archeus*, and were in themselves debilitating. Impurities, *introduced from without*, he allowed to be removed by mild aperients.

The services rendered by Van Helmont to medicine in general consisted rather in overthrowing the fanciful systems of prescription than in establishing one of his own; and his services to the iatro-chemical school, in particular, are of a similar description. In some passages, indeed, he expressly guards against the error into which that school afterwards fell of supposing that the direct chemical medication of the altered secretions was the true therapeutic indication. The altered secretions are not the disease itself, but the *results* of the disease. Thus he expressly says: “In gout it is not the acid state of the system which we have to think of; this is merely a product of the malady.” But the abstract and mystical *Archeus* to which he taught that remedies should be addressed soon slipped out of the system of his more materialistic followers, while the progress of chemistry, to which he had himself given no inconsiderable impulse, inclined them more and more to the exclusive consideration of the chemical changes in the organism which were appreciable to the senses. In rationalistic terms, Van Helmont was a believer in the *dynamic* origin of disease, and regarded its chemical and physical phenomena as mere *symptoms*, deserving, indeed, of careful study, but not themselves the appropriate subjects of direct medication. In process of time the part of Hamlet came to be left out, and exclusive attention was paid to that which, in Van Helmont’s system, had but a secondary rôle.

While coinciding to a great extent with Paracelsus, whom Van Helmont calls “the fore-runner of true medicine,” he yet made several steps in advance. He substituted the *condition* or

* It would be mere waste of time to try to find etymologies for words used by Paracelsus, as the following anecdote will show:—On one occasion he quoted the celebrated line of Ovid, *Tollere nodosam nescit medicina ram* (*Ex Ponto*, i. iii. 24) in the form of *Nescit tartarum nodos curare ram*, and being asked the meaning of the word *nodos*, replied that it was the name of an eminent surgeon of antiquity!

diathesis "Duelech" for the material "tartar;" he rejected the astrology of the day, and the fanciful analogies of the "macrocosm" and "microcosm;" he modified, if he did not wholly reject, the doctrine of the three Paracelsian elements; he made a far more careful study of the chemical phenomena of disease, and he gave no adherence to the theories of Paracelsus which so closely resembled the doctrine of "signatures." Both intellectually and morally he presented many points of resemblance to his predecessor. He was a man of profound original genius, a fearless iconoclast, a mystic, and a devotee. I think it is clear that Paracelsus was a man of great original genius, while his iconoclasm and mysticism are proverbial. He, too, was unquestionably devout, in a manner; but it was in what Mr. Mantalini would have called a particularly "unpleasant, private madhouse kind of manner," and one which, I hope, will find few imitators. On whose side the superiority lay none can doubt, even if we are to accept as the faithful representation of Paracelsus the brilliant but erratic hero of Mr. Browning's magnificent poem.

In my next paper I will give a brief sketch of the growth and decay of the iatro-chemical school, of which Van Helmont has been, *faute de mieux*, taken as the founder.

CHLOROFORM.

By ALFRED HENRY MASON, F.C.S., &c.

COMPOSITION AND MANUFACTURE.

ACCORDING to Gmolin and Watts, chloroform—dichlorinated chloride of methyl, perchloride of formyl CHCl_3 —was discovered in 1831 by Souberan, who called it *ether bichlorique*, and independently, in 1832, by Liebig whilst studying the products which are formed by the action of chlorine on alcohol, who regarded it as chloride of carbon. Souberan was the first to obtain it by the action of chlorinated lime on alcohol, and although this method is official, and the chloroform sold in this country is almost invariably prepared on the large scale by this method, the substance is also produced in many other chemical reactions.

The published various methods for its production are as follows:—

1. Chloroform is produced, together with monochlorinated chloride of methyl, CH_2Cl_2 , when a mixture of chlorine and gaseous chloride of methyl, is exposed to the sun's rays. If the two gases be made to pass continuously into a vessel exposed to the sun and connected with a series of cooled receivers, the chloroform, being the least volatile of the products formed, condenses first, and if the current of chlorine be made rather strong and the receivers not much cooled, the product consists almost wholly of chloroform.

2. By the action of alkalis on chloral.—*Liebig*.

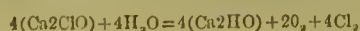
3. By the action of nascent hydrogen upon tetrachloride of carbon.

4. By boiling trichloroacetic acid with aqueous alkalis.

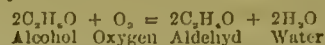
5. By the action of hypochlorites, or of chlorine in the presence of alkalis on various organic substances—viz. (a) on ethylic, methylic, and amylic alcohols, (b) on acetic acid and acetates, (c) on acetone, (d) on ethylsulphate or ethyltartrate of calcium, (e) on oil of turpentine and its isomers—the oils of lemon, bergamotte, copaib, &c. Chloroform may be regarded as methane or marshgas CH_4 , in which three atoms of hydrogen have been replaced by chlorine. Its composition is—

C = 12	100.00
H = 1	0.84
Cl ₃ = 106.5	89.12
119.5	100.00

The pharmacopœia instructs that the process to be used for its production is by the action of *ethylic* alcohol on chlorinated lime—in this process (according to Attfield). The hypochlorite of calcium believed to be present (Kingzett has it shown that it is present) in chlorinated lime readily yields up oxygen and chlorine to organic substances, the calcium being liberated as hydrate—



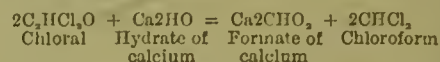
The alcohol used in making chloroform is thus, probably, first reduced to aldehyd:—



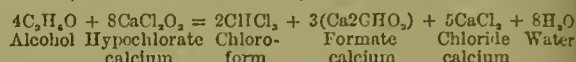
The action of chlorine on aldehyd then probably gives chloral (chloral-aldehyd):—



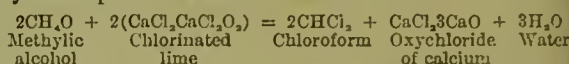
The hydrochloric acid being at once neutralised by some of the liberated hydrate of calcium to form chloride of calcium and water; more freed hydrate of calcium and chloral give formate of calcium and chloroform—



or, neglecting the probable steps in the process and regarding only the materials and the products, 4 molecules of alcohol and 8 of hypochlorite of calcium give 2 of chloroform, 3 of formate of calcium, 5 chloride of calcium, and 8 of water, thus:—



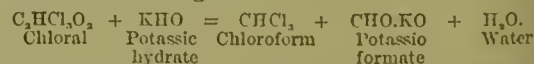
The hydrate of calcium placed in the generating vessels is not essential, but is useful in preventing secondary decomposition the hydrate of calcium obtainable from the reaction being insufficient for this purpose. Chloroform may be formed from methylic compounds thus:—



The method of production, on a commercial scale, in its details is, of course, of a private nature—probably, however, Kessler's method will roughly represent the process. He recommends that 80 lbs. of the strongest chloride of lime* be introduced into a large leaden cylinder through an opening in the top by means of a square wooden funnel, provided near its lower extremity with a pair of horizontal rollers; these, when turned, serve to drive the chloride quickly into the still. Eight lbs. of slaked lime are then introduced in a similar manner, and afterwards 20 gallons of water, at a temperature of 90° C. The apparatus is now carefully luted, and the contents well mixed by means of a revolving fan fixed in the interior of the cylinder. When the contents are thoroughly incorporated 8 lbs. of alcohol are poured in through an opening provided for that purpose, together with the residue of former operations, and if the action does not immediately commence steam is blown in by means of a pipe reaching to the bottom of the still. As soon as the chloroform begins to distil the steam is shut off, but is again admitted when the action slackens, the mixture being well stirred by means of the fan. When about 5 pints have been distilled over, no appreciable amount of chloroform remains in the retort. The chloroform obtained is washed with a dilute solution of sodic carbonate and distilled of concentrated sulphuric acid.

Most of the chloroform manufactured on the continent is now prepared by decomposing chloral with an alkali, and a remarkable pure product is the result. The demand for hydrate of chloral soon after its introduction as a medicine was so great that several manufacturers erected extensive plant for its production; the demand having fallen off considerably, the chloral is made use of in this way.

Chloroform is scarcely acted upon by an aqueous alkaline solution, whilst chloral readily splits up under these circumstances, producing chloralform and an alkaline formate; thus if chloral is heated with a dilute solution of potash it is decomposed in the following manner:—



The chloroform distils over, accompanied by a little water, after being separated from the water, and distilled of concentrated sulphuric acid, it is perfectly pure.

DESCRIPTION.

The British Pharmacopœia describes chloroform as "a limpid, colourless liquid, of an agreeable ethereal odour and sweet taste. Dissolves in alcohol and ether in all proportions;

* Ordinary chlorinated lime supplied to pharmacists rarely contains more than 35 per cent. of chlorine—the article used by chloroform manufacturers is much stronger, and is prepared by Tennant's process.

slightly in water, communicating to it a sweetish taste. It is, though not readily, with a green and smoky flame, r. 1-49. It is not coloured by agitation with sulphuric acid and leaves no residue, and no unpleasant odour after evaporation."

APPLICATION.

1852, Gregory in his "Handbook of Organic Chemistry," gives the following statement. For the introduction of chloroform as an anæsthetic remedy we are indebted to Professor Simpson, of Edinburgh, and although ether, benzol, and many other liquids can produce insensibility to pain, chloroform is of the most powerful as well as the most manageable. Of course, great care must be taken to insure its purity, for the oils which accompany it are very deleterious; and in administering the person should do nothing but watch the pulso and respiration of the patient, and remove the chloroform if necessary. The duo precaution chloroform is very safe, and this precaution will prevent its being used in cases where its use is contraindicated by the disease of the heart, or by marked tendency to syncope. In proof of its safety, it may be mentioned that in Edinburgh, where it must now have been used in upwards of 10,000 cases, no instance of a fatal result has occurred. Deaths have occurred elsewhere, but it is probable either that the chloroform used was not pure, or that it was used in cases not fit for it, or, finally, that due care was not taken to prevent overdose. That all these things can be avoided is proved by the results of the Edinburgh practice. From this statement it will be evident that it is of the highest importance that the chloroform should be pure.

IMPURITIES AND TESTS.

The impurities or foreign ingredients which have been detected hitherto are alcohol in excess, aldehyde, ether, hydrochloric acid, hypochlorous acid, and empyreumatic or chlorinated oils. The presence of the two former is easily detected by physical and chemical means. The acids would be present owing to decomposition, or with the chlorinated oils owing to imperfect purification.

To detect the presence of alcohol, if present, the addition of a little chromic acid will cause the chloroform to turn green. Davy states that if a little of the suspected substance is treated with a solution of molybdic acid in sulphuric acid, it turns blue, if alcohol be present, and as he found all samples of English manufacture were affected by that test, he assumed that English chloroform is adulterated. According to Roussin, the chloroform, shaken up with dinitrosulphide of iron, $\text{H}_2\text{S}_2\text{N}_4\text{O}_2$, remains colourless, but if it contains alcohol, ether, or wood spirit, it acquires a dark colour. A few years ago I applied this test, but without success, although concentrated specimens were experimented upon, and to ensure the purity of the salt I got some manufactured by an eminent firm manufacturing chemists. The presence of acids or of chlorinated oils will be evident from the disagreeable odour. In the administration of chloroform the presence of these chlorinated compounds to any appreciable extent produces a marked effect upon the system. They occasion a peculiar throbbing headache, and a rapid prostration of the vital powers. These symptoms may be observed when the chloroform is inhaled for a short time; and there can be no doubt that they are very often the causes of the discomfort so often resulting from the free use of impure samples of this anæsthetic.

WHAT IS CHLOROFORM?

Pure chloroform is chloroform, obtain the substance by what method or from what source you may, and looking at the matter from an economical point of view I do not see why the national revenue should be increased by the use of a substance which is applied to alleviate human suffering in its most acute form, and I maintain that what is commonly called methylated chloroform is just as safe and good as what is called pure chloroform. From a scientific chemist's point of view this seems very feasible, but I must confess that when I look at the matter from a pharmacist's point of view,* a difficulty arises, from the fact that the Pharmacopœia prescribes the use of ethylic alcohol in the manufacture; that this may be remedied in the next edition, my experience leads me to the fact that only about 40 per cent. of the chloroform of English manufacture consumed in this country is

what is commonly called pure chloroform (that is prepared from ethylic alcohol); and I believe that a large quantity of chloroform is sold as pure which has been obtained from methylic alcohol, and may nevertheless be pure chloroform.

I have searched medical publications and consulted medical men, with the endeavour to find out if there is any published or recorded evidence of different effects produced in the administration of those supposed different bodies. There is none that I can find or hear of, but I am met by the statement, that the administration of chloroform is attended with a certain amount of risk to the medical man; and the risk of an accident being attributed to the use of so-called methylated chloroform (of course by prejudice) is such, that it is not worth while for the operator to use it, although Professor Simpson stated, in lectures to his students, that there was no difference between them, and it is a fact that it has been often used (by mistake) without any ill effects, and it is furthermore a fact that at the present time some of the leading surgeons in Edinburgh employ only the chloroform prepared from methylated spirit, and for this reason, that the process necessary for the purification of methylated chloroform is such as almost to guarantee its being of greater purity than the so-called pure chloroform.

It is stated in text-books that chloroform prepared from wood spirit is much less pure than that prepared from alcohol. You are, of course, aware that methylated spirit is a mixture of 10 per cent. of wood spirit with alcohol. Now, wood spirit is a crude article, often containing large quantities of acetone, and almost always containing some. Any chloroform, therefore, obtained from it is due to the presence of this body. Pure methylic alcohol (prepared from methyl oxalate) does not give a drop, nor even a smell, of chloroform when treated in the usual way; and it is found in practice that chloroform is lost to the extent of the admixture of wood spirit in the spirit employed, and from this it will be seen that the chloroform obtained from methylated spirit is as truly chloroform as the substance prepared from pure ethylic alcohol. There is certainly more difficulty in purifying the former; *but it can be purified, and is purified, and, when purified, no one can possibly tell the origin of the chloroform.* I once asked the late Mr. Simpson, of Edinburgh, if he could detect the difference between the two, and he replied in the negative, but stated as a fact that the man employed by Messrs. Duncan, Flockhart & Co. to bottle chloroform could tell the difference from the supposition that the latter produced a peculiar feeling of nausea, which was not experienced when bottling chloroform from ethylic alcohol; and this was proved by instructing the man to bottle a quantity of chloroform as pure (purposely giving him methylated), and he experienced the nausea and reported his conviction that a mistake had been made. It is quite possible that the methylated chloroform was not *absolutely* pure in this instance; for, on the other hand, a friend of mine purposely allowed himself to be placed under the influence of each kind of chloroform for two hours, at two different dates, without experiencing any different effects, or any ill effects whatever. Such is the interest in this subject that samples were exchanged between different manufacturers, and reported upon without any practical result.

Amongst the various samples of chloroform placed before you I have marked six, and these represent chloroform prepared from ethylic alcohol, methylic alcohol, and acetone, and I shall feel obliged if any gentlemen present will examine these at the close of the meeting and permit me to tabulate the results for publication.*

The demand for chloroform being comparatively limited, the production is confined to a few manufacturers,† and the article being produced much more economically when made on a large scale. I apprehend it is not expected that the pharmacist shall prepare his own chloroform,‡ and the difficulties of purification are such that it is simply a matter of private detail, which enables the more economical production.

SPECIFIC GRAVITY.

Various statements are made in text-books as to the specific gravity of chloroform, varying according to the temperature at which they are taken. The British Pharmacopœia states the

* No one present could detect the source of the chloroform.

† These are chiefly in Scotland, from the fact that at the time the substance was introduced the duty on alcohol was 5s. per gallon less than it was in England—this injustice is now removed.

‡ The cost of preparing the quantity of chloroform prescribed in the Pharmacopœia by that process is about 15s. per lb., and the article can be bought at 5s. 6d. per lb.

sp. gr. is 1.49. The American Pharmacopœia, 1.480. Pure chloroform has a sp. gr. of 1.500, but of this strength it is quickly decomposed, and is not reliable after being kept any length of time, as the presence of the slightest trace of decomposition renders its administration attended with danger. It is found by experience that the addition of 1 per cent. of anhydrous alcohol prevents this decomposition, and this admixture reduces the sp. gr. to 1.497, which is the specific gravity of that ordinarily sold, and of the six samples I ask you to examine. These samples were pure chloroform of sp. gr. 1.500 at 60° Fahr. before the alcohol was added. The sample prepared strictly in accordance with the British Pharmacopœia, has a sp. gr. 1.497 without the addition of any spirit. It is not affected by Davy's molybdic acid test, but is discoloured by chromic acid. It is certain that chloroform, which has a sp. gr. below 1.500 at 60° Fahr., and does not contain alcohol, must contain some other substance of a lower sp. gr. than 1.500, and unless ether be present I cannot understand why Davy's test fails in this instance. When crude chloroform is distilled with sulphuric acid ether is formed, and there is a probability that ether may be present in the chloroform; but as yet I have not studied this question sufficiently to enable me to give a definite test for its presence. I purpose looking further into this matter, and will report the results when completed. Ether may be added to absolute chloroform, and you cannot distinguish the admixture from the original sample. I apprehend, however, if it can be shown that ether will preserve chloroform as satisfactorily as alcohol does, its addition would be preferable.

As the Pharmacopœia morally admits the presence of alcohol, it cannot be looked upon as an adulterant, and Mr. Dott has shown that Davy's test is not a guarantee as to the purity of chloroform, as it only gives evidence of the presence of alcohol. Chlorinated oils do not give the blue coloration with this test.

Mr. Allen (in the *Analyst*, October, 1877, p. 97) states that alcohol may be detected in ether by the addition of a fragment of fuchsine. If there is no coloration the ether is pure. He further states, "The method could not well be applied to chloroform, because of the difficulty of getting this liquid perfectly pure." He would not obtain a sample from ordinary sources free from alcohol, therefore his test must be valueless as far as its application to chloroform is concerned, unless his chloroform was reduced with ether, as I have before suggested it may be.

I have in these tubes 12 samples of chloroform, to which chromic acid has been added. As these have been in contact some days, all the samples (with the exception of two, which were of sp. gr. 1.500) are coloured brown, and when allowed to rest most of this colouring matter deposits itself.

I must apologise for having found it advisable to make copious extracts from text-books; but in these days, when the chemical and physical sciences are making such rapid strides as to almost revolutionise the hitherto supposed region of facts, I think that, in the face of some little difficulty in providing papers for our meetings, if we read up subjects and lay the results before the members, with any additional facts that may suggest themselves, it will afford information for some, and those who are happily beyond this state may be benefited by having their memories freshened. My own experience leads me, however, to the admission that, the more I look thoroughly into any subject, the more deficient I find my supposed knowledge has been.

In conclusion, I venture to express a hope that the use of methylic alcohol may be permitted in the next edition of the Pharmacopœia; that a definite sp. gr. for chloroform will be stated; and that, as it is found in practice that to get absolutely pure chloroform it must be of sp. gr. 1.500, and the addition of alcohol is necessary for its preservation, this will be made admissible also.

SOCIETY OF ARTS PRIZE BLOWPIPE APPARATUS.

TWO months ago we mentioned that the prize offered by the Society of Arts for the best guinea set of blowpipe apparatus had been awarded to Messrs. Letcher Bros., of St. Day, Cornwall. The prize consisted of the Society's silver medal, augmented by 10% from Colonel Croll. The following description of the set has been lately published in the *Society of Arts Journal*. The set described is a standard one deposited by Messrs. Letcher at the Society's house, and the firm guarantees that every box shall be equal to the one sent in.

The apparatus and re-agents are contained in a stained deal box, 10½ inches by 4½ inches by 3½ inches, which weighs, when full, 3 lbs. 9½ ozs. The box is provided with lock and key. It contains the following articles:—

- | | |
|--------------------------------|-------------------------------|
| 1. Blowpipe. | 22. Charcoal pastilles. |
| 2. Spirit lamp. | 23. Boiling dish. |
| 3. Grease lamp. | 24. Open tubes. |
| 4. Hammer. | 25. Closed tubes. |
| 5. Anvil. | 26. Glass rod. |
| 6. Pestle and gnard. | 27. Blue glass. |
| 7. Platinum forceps. | 28. Litmus paper. |
| 8. Brass forceps. | 29. Turmeric paper. |
| 9. Lamp tweezers. | 30. Brazil wood paper. |
| 10. Test tube holder. | 31. Soda paper. |
| 11. Chisel. | 32. Carbonate of soda. |
| 12. Maguet. | 33. Microcosmic salt. |
| 13. File. | 34. Borax. |
| 14. Scissors. | 35. Bone ash. |
| 15. Cupel striker. | 36. Fluor spar. |
| 16. Bone spatula. | 37. Assay lead. |
| 17. Platinum wire. | 38. Nitrate of cobalt. |
| 18. Platinum foil. | 39. Bisulphate of potash. |
| 19. Tinfoil. | 40. Oxide of copper. |
| 20. Magnesium ribbon. | 41. Chloride of silver. |
| 21. Pastille and cupel holder. | 42. Potassiodide and sulphur. |

The first thing that attracts attention on opening the box is the mode of packing. Save the pastille box and holder, the glass tubes and holder, file, soda paper, and lamp tongs, all the apparatus and re-agents are contained in a wooden block with a variety of holes and recesses, each receiving a separate article. It is therefore simply necessary to lift out the block, and everything is set free, for none of the pieces of apparatus in any way interfere with each other. The repacking is effected quickly and easily, as each article fits into its own place, and an unfilled opening at once indicates that something is missing. If ordinary care is used, therefore, the traveller need not be afraid of leaving anything behind. No paper, wadding, or pads are required, and yet the contents of the box are securely packed.

The blowpipe is made of brass, with a trumpet mouth-piece as recommended by Plattner; but the arrangement for getting rid of any moisture from the breath is novel, for the end of the moisture chamber is made to pull out altogether. The nozzle is of brass, but the Messrs. Letcher will supply others made of platinum at a small additional cost, probably about 2s. or rather less.

The lamp is one of the new grease lamps, which seem to be making their way into general use, for several of the boxes sent in for competition were supplied with them. Persons accustomed to oil lamps, candles, or gas, may find a little difficulty at first in using a grease lamp, but after a very few trials any trifling inconveniences will soon be overcome. The grease lamp is a small tinplate cylinder, with a broad flat wick on one side, and it is necessary, after lighting the wick, to take the blowpipe and direct the flame on to the grease until some of it is melted; after that the heat given out by the flame is sufficient to liquefy the rest of the grease, and the lamp goes on burning as long as there is any left. Messrs. Letcher's lamp will burn for more than two hours without requiring any further supply. Any sort of grease may be used, such as tallow, pieces of composite candles, night lights, or ozokerite. Of course oil answers perfectly well also, but then the advantage of the grease lamp is lost, which consists in the fact of there being no liquid to carry about when travelling. For hot countries a fat or mixture must be chosen which does not melt at too low a temperature. The cap of the lamp serves as a stand for it, and if greater height is required, as during a cupellation, for instance, the lamp may be placed on the box.

The spirit lamp is made of tinplate, which is calculated to resist rough usage better than glass; besides, it enables the cap to be screwed on, and, by means of a leather washer, any escape of spirit is prevented.

The hammer has an iron handle for convenience of packing. Messrs. Letcher's pestle and guard, when used on the anvil, form an arrangement like Abich's mortar, very useful for crushing hard minerals, especially when it is important not to lose any of the fragments.

The forceps used in testing the fusibility and flame coloration are made of steel, with pieces of platinum riveted on, and

practical purposes are quite as useful as the more delicate forceps supplied by the German makers.

Brass forceps are intended to fulfil several purposes. In the first place they serve, of course, for picking up small fragments of minerals, and, secondly, they can be applied to uses suggested by Major Ross. By means of a sliding loop of the forceps are converted into a clip for holding pieces of gum wire while testing with borax or microcosmic salt. If the wire is unfolded from the bead, it may be cleaned by drawing through the broad part of the forceps. This is a "trick" worth recollecting when travelling. Finally, the ends of the forceps, when pressed together, form a long cone, in which the platinum wires may be bent again into loops of various sizes as required.

Figures Nos. 9 to 20 do not require any special remark.

Fig. 21 is a square prism of biscuit or unglazed porcelain, which is used as a support for the charcoal pastilles after they have been blackened over the flame of the lamp. The blackened surface serves to catch the incrustation, whilst any sublimate of the assay is caught on the pastille itself, and can be there removed with nitrate of cobalt. In order to have sufficient space for this test, it is advisable to place the assay near the end of the pastille. It should here be stated that these pastille-holders are merely a modification of those invented by me many years ago; they differ from Griffin's in the fact of the pastilles being larger and the holders smaller.

The pastille-holder is made to fulfil two other purposes: the blackened sides may be used as streak plates, and a cavity at the end serves to receive bone-ash for cupellations. In an analysis of this kind, intended solely for qualitative experiments, it was thought unnecessary to have the special cupeller designed by Plattner, and it is found that cupellations can readily be performed on a little bone-ash pressed into the end of the holder with the cupel-striker.

Turning to the re-agents, it will be found that there are the means of testing for all the common elements, though the experimenter who wishes to test for traces of nickel in the presence of much cobalt, manganese, or iron, will have to spend some pence in buying a little bead of gold for collecting the metal in the usual way.

Carbonate of soda is guaranteed to be free from sulphur, and the assay lead from silver. The latter is prepared by precipitation from the acetate. The assayer may therefore rest assured that any trace of silver that he finds was really contained in the ore tested, and not in the re-agents used.

Enough has been said to show that the Messrs. Letcher supply a very good guinea's worth. They propose selling the same apparatus in a mahogany box at a somewhat higher price.

PILL COATING.

By EDWARD S. BULL.

Read before the London Chemists' Assistants' Association, on April 3, 1878.)

The subject of this paper, although not at present in constant use, is very important to the pharmacist, and the number of prescriptions (daily increasing) which have to be dispensed, in which pills are ordered to be coated, claims for it a little attention. We have heard a good deal of late about pill coating. Some of the processes I shall bring before you to-night are taken from papers which have already been published, and some extracted from journals, &c. However, a few of the processes may be new to my hearers.

We are all well acquainted with the old and still general method of dispensing pills, namely rolling them in fine powders, such as magnesia, liquorice, starch, lycopodium, &c., any of which powders, adhering to the moisture of the pill, form a kind of coating, but do not cover the taste and odour of the substances of which the pills are composed.

As pharmacy progressed, the attention of the pharmacist was directed in devising some means for making pills pleasing to the taste and agreeable to the palate.

One of the earliest methods used to attain this end was rolling them with a solution of gelatine, which effectually masks the taste and odour, and prevents chemical change in the pill from exposure to air.

We have now besides this several methods of pill coating,

namely, varnishing, chalk coating (Cretn. Gall.), sugar-coating, covering with gold or silver leaf, on each of which processes I shall make a few remarks.

Before attempting to coat pills it is needless for me to impress upon dispensers the necessity of having the pills perfectly round and hard—when I say *hard* I don't mean that they are to be made like marbles—a firm consistence is all that is required; for when properly coated they should retain that consistence for a considerable time, and not harden like pills merely kept in powders.

When practicable I should recommend that in place of the essential oils, put in the pills to prevent griping, such principles as gingerine, capsicine, &c., should be used, as the oils very often soak through the coating and discolour it. I find also when glycerine has been used as an excipient that the pills do not so readily take the coating, neither is the latter so permanent as it is under other circumstances. This is probably due to the hygroscopic nature of the glycerine.

When the pills contain essential oil, they should previous to being coated be covered with a varnish consisting of gum juniper dissolved in ether or other varnish. A little common resin in the varnish greatly assists the adhesion of the coating.

The method adopted by M. Garot to cover pills with gelatine was to make a solution of gelatine in a small quantity of water, which is to be kept liquid by means of a water-bath. Each pill, suspended on the point of a pin, is dipped and afterwards allowed to dry, the pin is then withdrawn, previously being warmed, which causes the orifice to close up. When coating pills with gelatine, the solution should be kept at a certain density by the addition of water, to allow for evaporation. Collodion has been used as a coating, but does not meet with approval on account of its doubtful solubility.

The varnishes in ordinary use are solutions of mastic, gum juniper, resin or balsam of tolu, dissolved in ether or chloroform in the proportion of 1 to 4. To varnish the pills, they must be put into a pot (an ordinary ointment pot answers very well), the varnish is then poured out, the pot quickly shaken and the pills thrown upon a tray or slab; in a few minutes the ether or chloroform has evaporated, and the pills present a shiny varnished appearance. I find that if the slab is previously very slightly smeared with almond oil a much better result is obtained, as otherwise the pills are apt to stick in one place.

The pills, varnished with gum juniper, I notice, become very dull, and present a powdery appearance by constant friction with each other; the mastic solution does not produce a bright varnish; therefore I make it a rule to use the solution of either balsam or resin of tolu.

I have tried to form a pearl coating on pills by first varnishing them with tolu, and, before the varnish is dry, throwing them into a tin containing finely powdered French chalk, or a mixture of French chalk and magnesia, and then shaking them with a rotary motion, but the result has in each case been most unsatisfactory, the powder adhering to the varnish very unevenly. The varnish I have found best for this kind of coating is one consisting of Canada balsam and ether. I exhibit here some pills first moistened with this varnish, and then rolled in a mixture of French chalk and magnesia over a spirit lamp; these pills at first were of a good colour, and presented a glossy appearance, but after keeping for six months they have become dull and of a dirty yellow colour.

A few years ago a gentleman advertised for sale a recipe for coating pills. This proved to be simply to moisten the pills with mucilage of acacia, (about one of gum to seven of water), and afterwards rotate them in finely powdered French chalk. I have never got a very good coating by this method, but a tolerably good appearance can be given to the pills by repeating the process several times, allowing each coat to dry before applying another.

I could prolong this paper considerably by enumerating the different methods I have tried in order to coat pills, but as the reverses I have met with would not prove very interesting I will simply give you a few processes from which I have gained good results. What we most need is some method for coating pills in small quantities. The specimens I have on the table will give you some idea of how the pills will look after adopting the following methods, but I would recommend you not to be discouraged if at first you do not succeed as well as you could desire, as the result depends not so much on the component parts of the coating as on the manipulation.

A mucilage should be used consisting of 1 part mucilag.

acacia (B.P.) and 3 parts distilled water. A very good coating can be produced by first moistening the pills with this mixture and afterwards rotating them in a basin or covered pot containing French chalk or a mixture of French chalk, 1 part, and heavy calcined magnesia, 2 parts. After well shaking the pills in this powder transfer them to another pot containing French chalk only, again shake them well, and finish by rotating in a clean dry basin without any powder. You can in this way coat any number of pills in a very short time.

Another process worth trying is to moisten the pills with mucilage and shake them in a plaster of Paris, which forms a groundwork upon which when dried, and again moistened with mucilage, French chalk will adhere and form a very pearl-like coating.

I have tried diluted albumen, but have not met with good success.* By first moistening the pills with an emulsion consisting of balsam of Tolu 5j, mucilage, acac. 5ij, and water 3ss, and afterwards rotating them as above in French chalk, with or without magnesia, a nice shining coating can be obtained, but it is objectionable on account of its yellow tint.

Another good method is to moisten the pill with a weak decoction of linseed, and afterwards roll in a powder consisting of French chalk and powdered gum acacia.

A very good coating can be produced by rotating the pills, previously moistened with mucilage of tragacanth, in a mixture of French chalk, sugar, and magnesia, or French chalk, gum acacia, and magnesia, afterwards polishing in French chalk alone. The appearance of the coating in most of the above cases, can be varied by colouring the powder with a few grains of carmine or turmeric, scented with otto of roses or essence of lemon.

With regard to sugar-coating I cannot say much, as I have not met with very great success. The various processes no doubt answer best when carried out on a large scale. I have tried a method suggested by Mr. Symes, Ph.D. in a paper read before the Liverpool Chemists' Association. His process is as follows. The pills, well dried on the surface, are introduced into a tinned copper bowl with a flat bottom, or enamelled iron dish, the surface of which has to be moistened with syrup, or a mixture of syrup and gum; they are then rotated and gently heated, finely powdered sugar being dusted on, and the motion kept up until a perfectly hard coating is obtained. This operation is repeated until the desired effect is produced. I find this answers very well, but prefer using a mixture of sugar and sugar of milk, instead of sugar only. Before leaving this class of coating, I must again impress upon you the necessity of proper manipulation. The first attempt generally proves a failure, but by perseverance a very good coating can be given to the pill by some of the above processes.

I need not describe to you the well-known way to silver pills, but I find a more polished appearance is obtained by allowing the pills to stand for a few minutes after covering with the leaf, and then rotating them in a dry pot. A little cotton-wool in the pot greatly assists in detaching any loose particles of leaf. Pills which contain chemicals likely to act on the silver, and those containing assafoetida, which, on account of the sulphur it contains, destroys the silver, should, previous to receiving the leaf, be varnished with Tolu.

FIRE AT MESSRS. HOWARD'S CHEMICAL WORKS.

ONE may well wonder how it is we manage to get even the roughest approach to accuracy in our daily papers in reference to events occurring at Constantinople or St. Petersburg when we find such distortion of facts as was conspicuous in a recent report, which ran round the journals of a fire at Messrs. Howard's chemical works. The *Globe* of last Thursday announced in large type a "Great Fire at Stratford," and pictured the local fire-engines and brigades utterly unable to cope with the destructive element, so affectionately spoken of by all penny-liners. Both that journal and the *Telegraph* of the next morning explained that the fire had originated in the "ether-mills" belonging to the firm, an expression which recalls the Yankee slang, of "beer-mill" as applied to our public-houses.

The *Daily News* was more explicit in its details, but not less inaccurate. According to that organ—"The neighbourhood was alarmed at the report of a loud explosion, which was ascertained to have proceeded from the camphor refinery. The force of the explosion blew the wall in the rear of the building into the water, a tributary of the river Lea, which caused the roof to fall with a loud crash. The situation of the fire being beyond the radius of the Metropolitan Brigade, the Local Board engines only attended, being accompanied by Mr. Superintendent Joas. The fire burnt furiously for some time, but the endeavours of those engaged in extinguishing them [the engines and Mr. Jones, we presume,] were successful in confining the damage by fire to the scene of the outbreak. One of the workmen was seriously hurt by the brick wall falling on him, and was taken away in a van. The cause of the fire is supposed to have been through the overheating of one of the 'pots' used in melting (*sic*) the raw material. The firm, we understand is not insured."

Our reporter proceeded to Stratford to inspect the scene of "the disastrous explosion and fire," and to estimate the probable effect on the quinine market. He found the facts as follows:—The camphor refinery is a small one-storied building, standing on a narrow strip of ground between the High Street and the river Lea, and adjoining the back wall of the premises. On the side next the river, and away from the High Street, the foundation had given way, so that the wall had dropped out of the perpendicular. This had attracted the notice of those in authority, and measures for its repair were under discussion, when, on the day in question, a quantity of camphor, which had by some chance got wet, was put into the refining stills. This caused a puff of steam, which tipped the wall over. The building stood so near the river that the falling bricks knocked over a portion of the fence that guarded its bank and fell themselves into the water. The roof, of course, was dragged down with the wall. The force of the explosion may be estimated by the fact that a man, who was standing between the still and the wall that fell, was not knocked down or hurt. The camphor, it is true, did burn furiously for a minute or two, but the workmen on the premises extinguished the flames without any external assistance, and the West Ham fire brigade coming up at a gallop, found itself a deal too late. Even the greater part of the camphor concerned was saved, and a few hours later was being made into the bells familiar to the chemist.

The camphor "melting pots" of the *Daily News*, and the "ether mills" of the *Telegraph* balance each other in absurdity, and should qualify the sub-editors of these "engines" for the Institute of Chemistry, so evidently original and limited are their notions of every-day chemistry.

The building destroyed happened to be the one department Messrs. Howard's premises not insured, but the damage effected will not, we imagine, make an appreciable difference in their profits during this happy quinine harvest. The accident did not interfere in the least with their regular business.

FILTRATION OF WATER.

THE struggle between the filter manufacturers is amusing, and they show their advertising acumen by taking a liberal advantage of the opportunities offered to them by the various scientific societies where the subject of pure water and how to get it seems perennially popular. The latest occasion for some semi-scientific sparring was provided by the Society of Arts. On April 25 Mr. Gustav Bisehof, the apostle of "spongy iron," read a paper on the "Purification of Water" before the chemical section of that society. Dr. Voelcker presided.

The paper commenced by stating the impossibility of obtaining absolutely pure water, and described the nature of the various matters either gaseous, mineral, or organic which are usually found in water. Shallow well and river water were condemned as being generally polluted, and the necessity for domestic filtration was strongly insisted on. Judging, however, from the remarks contained in the paper as to the qualities of the various filters commonly known, there does not appear to be one that is of any value excepting that with which the writer's name is connected. The paper elaborately led up to this conclusion and was interspersed with testimonials from eminent authorities.

* A friend informs me that he gets a good result by mixing albumen with diluted mucilage, and rolling the pills in French chalk with the aid of heat. He keeps the albumen dried and powdered, for use when required.

the discussion which followed, Dr. Bartlett commented on unsatisfactory and unproved statements of the paper from a chemical point of view, and remarked that it appeared to aim to serve the interests of filter makers rather than discuss the scientific relations of the subject. As regarded the properties of spongy iron, he was unable as a chemist to understand how it rid of ammonia from water. Neither did he comprehend what process it reduced the hardness. At first charcoal had been used in combination with the spongy iron; it was not quite what means were substituted.

Mr. Thorp considered that the Water Companies themselves were the proper persons to filter the water, and he did not rely on domestic filtration. He regarded filters principally as producers of oxygen to water.

Mr. Death criticised the paper from a brewer's point of view. He thought that, as compared with another filter which he did not name, spongy iron must be called a reducing medium, the other being an oxidising one.

Professor Wauklyn dissented from this theory, but was pleased with the idea suggested by Mr. Thorp as to the effect of really efficient filtration, viz., the conveying of oxygen to the organic matter contained in water. He had found this to be the case especially with the silicated carbon filter, as stated by him some time ago in the *Chemical News*. He had made experiments on spongy iron, but did not find that it acted better than many other substances. In fact, he believed he was not exaggerating in saying that the silicated carbon filter would act in removing organic matter, at about one hundred times the rate of the spongy iron.

Mr. Spencer contended that there was nothing new in the idea of purifying water by means of spongy iron. The great objection to it was that it imparted a chalybeate flavour to the water, which had to be removed by a second filtration through some other substance. The term spongy iron gave an idea similar to that conveyed by spongy platinum, but in reality this was nothing more than filtration by iron.

The Chairman advocated domestic filtration as a safeguard, and agreed with Mr. Thorp and Professor Wauklyn as to filtration being an oxidising process. He spoke favourably of the spongy iron filter, but found two defects in its use. One was that it filtered rather slowly, and the other, that it was liable to become choked at the top by oxidation, so that no water could pass at all.

Mr. Bischof replied, and the meeting closed.

NOTES FROM GREECE.

PROFESSOR X. LANDERER has forwarded to the *American Journal of Pharmacy* a batch of notes from Greece, from which we make the following selection:—

A sample of reduced iron submitted for examination showed a number of light blue grains when examined under a magnifier. Analysis proved conclusively that it had been prepared by the perfect ignition of Prussian blue.

Seal oil is much used in Greece in place of cod-liver oil. Fish have been found stupefied by feeding on fish poisoned with the fruits of various species of *Euphorbia* or *cocculus* incus. Against this practice severe laws have been enacted, and the danger to human beings would seem to be far from imaginary.

Cayenne, in doses of one to two drachms, in rum or mastigonaki, is used by the poorer classes as a substitute for quinine in chronic fevers. Physicians also use an extract of the leaves of unripe fruit of the olive, made with dilute sulphuric acid. Powdered drugs are imported into Greece from France, and are not infrequently adulterated. Powdered jalap has been found mixed with various powders, and among them the residue from the preparation of the resin. In *lycopodium* 50 per cent. of pine pollen has been found; *p. cubeba* has been adulterated with a marc from the extract flavoured with oil of pennyroyal; subarb with powdered rhapontic and other roots.

As a remedy for burns and scalds, the Orientals apply thick layers of ink. This often leaves a permanent mark. The "evil eye," formerly combatted in England by the horseshoe over the stable-door, is counteracted by hanging round the horse's neck a silver box containing a large crystal of sulphate of copper. The amulet is called *filakta*. Against bewitchings and enchant-

ments the stables are very generally fumigated with asafoetida, galbanum, and other foetid substances.

In Greece a million horses, 12 to 15 million sheep and goats, two million asses and mules, and other animals, are under the care of five or six regularly-educated veterinary surgeons, and a number of self-taught farmers called *albanides*. There is no veterinary school in the country.

To prevent the hair falling out, the common application, in Oriental countries, is the bruised bulbs of the *Asphodelus bulbosus*, of garlic, or onions, mixed with gunpowder. An infusion of the small leaves of the orange or lemon tree in red wine, containing 20 grains of tannin per litre, has also proved serviceable.

The lees of wine, which were formerly thrown away, are now dried in the sun and exported to Italy, where they are used in making cream of tartar. Bisulphide of carbon has been recently introduced into Greece to extract the remainder of the oil from the expressed olives. The oil thus extracted is called *pyrene-laion*; from *pyren*, a kernel. *Extractum ferri pomatum* is replaced in Greece by *extractum ferri uvicum*. Sour apples are very scarce, while grape-juice is plentiful.

To determine the quality of emery, the Smyrna merchants rub one grain of it on an accurately-weighed glass plate, with a glass pestle, until no more glass is ground off. The plate is then washed, dried, and re-weighed, and the greater the loss of weight the higher the quality of the emery.

CHEMISTS' ASSISTANTS' ASSOCIATION.

THE first annual general meeting of this association was held on May 1, at the Quebec Institute, Baker Street. The attendance was not large. The report of the retiring council was read and adopted. It gave a *resumé* of the history of the association from its inauguration, and stated that donations of money had been received from J. B. Baines, Esq., York Glass Company, Messrs. F. Newbery & Sons, Davy, Yates & Routledge, and A. Bishop, and of books from Dr. H. B. Dobell, of 84 Harley Street, W., and other gentlemen. Considerable difficulty had been experienced in procuring a room. The treasurer's account showed that during the year 60 ordinary and 6 honorary members had enrolled themselves, and that the income, including donations, had amounted to 26*l.* 2*s.* Of the expenditure the most considerable item was 8*l.* 1*s.* 8*d.*, which, in addition to subscriptions amounting to 7*l.* 18*s.*, had been laid out on account of the *soirée*, held on February 27, at the Quebec Institute. The other expenses had amounted to 14*l.* 17*s.* 2*d.*, leaving a balance in hand of 3*l.* 3*s.* 2*d.*

A proposition was then moved by Mr. Branson, and seconded by Mr. Stuart, to the effect that the meeting then present desired the incoming council to consider the advisability of removing from their present quarters in Brewer Street. After some active and skilful hair-splitting, the words of the motion were slightly modified, and it was passed *nem. con.* A proposal by Mr. Stuart to alter the title of the association to the "London Chemists' Assistants' Association," was thrown out by a majority of two.

Some alterations in the rules increasing the number of the council, and leaving it at liberty to meet only when required, were then made, and the meeting proceeded to elect a council for the year 1878-79.

The following were elected to the offices and council of the association:—

PRESIDENT.	COUNCIL.
Mr. O. Wallis.	Mr. Baker.
VICE-PRESIDENTS.	Mr. Brotherford.
Mr. A. Sawden.	Mr. Bull.
Mr. F. W. Branson.	Mr. T. Cardwell.
TREASURER.	Mr. Glover.
Mr. John McKnight.	Mr. Newsome.
SECRETARIES.	Mr. Princeps.
Mr. E. Cardwell.	Mr. Squire.
Mr. C. E. Stuart.	

THE MUCILAGE OF QUINCE SEED is more easily and quickly made in a bottle than in any other way that I have tried, as the shaking washes off the mucilage from the seed as fast as it is formed.—*Druggists' Circular*.

THE PARIS EXHIBITION.

SUCH a show as that which has lately been opened in the French capital furnishes abundant food for reflection. It is not our intention to moralise over it. The failure of international exhibitions to accomplish all that was hoped and prophesied of them has been far too patent, and has offered a frequent theme for the pen of the cynical critic. Since 1851 the world has seen at least six really great international exhibitions and a number of secondary ones. When this era commenced, the flattering fauzy of a period of universal peace was the dream of men who claimed to be practical and prosaic. During the quarter of a century great wars which have occupied all the chief nations of the earth have, however, more than alternated with great exhibitions, and the last and greatest of the latter has been opened at a moment when Europe is busily preparing for what may prove the deadliest and saddest conflict of them all.

But however exhibitions may have failed to fill out their original programme, the present one is a standing memorial of their peaceful influence. The fear of compromising its success was without doubt one of the most powerful factors in bringing to a happy termination the threatening dispute of May 16; and perhaps no one influence has contributed so much to the apparent steadiness and security of the existing Government as this Exhibition. Who, again, can calculate the effect on European politics which it has produced? In the midst of much passion and many complications we have had the incalculable advantage of a profound and earnest desire for peace, both in the French Government and among the French people. This newly-developed Gallic tendency is, no doubt, traceable to a selfish anxiety for the success of their national enterprise; but for all that the Exhibition has the fullest claim to the credit of whatever influence France has exercised over these long and weary negotiations. The fact is, commercial rivalry is a new force in the world, as compared with military prowess, and if it is not yet strong enough to keep down its more dazzling competitor, it can and does at least place obstacles in its way, so that the rôle of the conqueror is not nearly so easy as it was a century or two ago. Before starting on his career he must reckon with his tradesmen.

The new Exhibition is far and away the largest that has yet been held. The temporary building in which the exhibition proper will be held covers a space of 420,000 square metres, or more than three times the size of our London Exhibition of 1862. Into this space are gathered the choicest specimens of the world's industry, and the selected masterpieces of its artistic productions. More than half the space is occupied by French manufactures and contributions; to the rest, all the civilised world except the German Empire has sent its best.

The world has vast capacities, or one would be inclined to say that this international Exhibition must be the last of the series. In this the limit of practicable size has surely been reached; and whether any other nation, or France itself, will be contented to recede in this matter of mere space is to be doubted. An exhibition in which one-tenth of the objects here displayed should be gathered would be a delightful treat, and would be a possible one for one human being to compass; but the effect of this is wearying to the mind as well as to the body. It contains, it is said, not less than twenty miles of show-case frontage; and even the most determined "shopper" can scarcely realise the fatigue of having to examine that length of shop windows. But there is much besides this. There is a very extensive and very splendid fine art section; there are the vast grounds, with their special horticultural exhibitions; their Turkish, Parisian, Moorish, and Chinese bazars; their restaurants of various nationalities. Across the Seine, but still within the Exhibition grounds, are the grounds of the Trocadéro; and on the summit of the slope is the new palace of the Trocadéro, from the corridors of which spreads out beneath the gaze of the beautiful and almost perfect panorama of the city, with its numerous buildings of historic interest standing out prominently in the clear atmosphere. The entrance fee for all this enormous and magnificent collection is only one franc.

In this paper we shall give only a few scattered notes from material gathered during a good many visits previous to the opening, and on subsequent occasions we shall enter more into detail in reference to the exhibits of special interest.

It has been frequently stated that the British section was by far the most advanced of any by the opening day. This is not quite exact. The various countries seemed to have observed punctuality in a sort of inverse proportion to the distance from which they had to bring their goods. China, Japan, and the Australian colonies, were by far the most finished on May 1, and we doubt if any sections will be more worthy of the Exhibition than these. The several Australian courts are particularly pleasing, both in their picturesque arrangement and in the interest of the exhibits. They well deserve a more detailed notice than we can give now. China and Japan show collections, every object of which is charming to us western barbarians, and their sections will certainly yield in popularity to none. The British show is a very extensive one, and whatever delay occurred there in preparing for the opening was certainly not the fault of the exhibitors, while equally the forwardness of the English section to the extent that was observable was not very easily traceable to the British Commission which seems so ready to appropriate all the credit.

A good deal of superlative commendation has been bestowed by certain journals on this British Royal Commission. No one can doubt the zeal with which all the officials, from the Prince of Wales downwards, carried on their labours; but there must have been some little weakness in the diplomatic department or the British Commission would hardly have allowed itself to be tied hand and foot with French red tape as it seemed to be. The reporters who make it their business to glorify the Commissioners seem to have the advantage of a personal acquaintance with Mr. Cunliffe Owen, the secretary, but it is a pity that that honour should be allowed to make so much difference in the facilities afforded. The one department of the British section which was in perfect order for several days before the First of May was the agricultural machinery. And it happens curiously that this department was the most independent of the Royal Commission, for the chief manufacturers had formed a small Commission of their own, had built an annexe to suit themselves at their own expense, and had seen to the transport of their goods themselves. The packages of other exhibitors came along in the most disconnected fashion, and as there had been no system of forwarding organised, the order and the time in which they arrived was left pretty much to the sweet will of the packages themselves; many of them are still on the journey.

Notwithstanding the generally backward condition on the opening day, there were, as was well remarked, a hundred times as much displayed as any one person would be able to examine carefully. It is quite impossible at present to give anything like a general report of the pharmacy of the Exhibition. For the moment we must confine ourselves to a few cursory notes. In the British section the collections of fine chemicals was very admirable, but we did not find anything strikingly novel.

Messrs. Savory & Moore are perhaps as prominent as any in this group, and among their many specialities appears the medicine chest designed for and supplied to Mr. H. M. Stanley for his African journey.

Messrs. T. & H. Smith & Co., of Edinburgh and London, have a very valuable collection of opium alkaloids, with other alkaloids, for the manufacture of which they are famous.

Messrs. Southall Bros. & Borelay make a strong feature of their Alcod liver oil, which they claim is so prepared as to remove some of the less digestible fats. They also show specimens of absolutely pure chemicals.

Messrs. T. Morson & Son show a collection of rare chemicals, of very fine appearance, and their exhibit is considerably improved by a tasteful arrangement of splendid crystals. In another division of the same case Mr. A. W. Gerrard shows an interesting collection representing the most modern chemistry. This includes several salts of pilocarpine, chrysophanic acid, socaloin, nataloin, thymol, and bismuth bromide. Plasters, suppositories, and pessaries are also in Mr. Gerrard's display. (Suppositories, pessaries, the official English catalogue says, are these.) Mr. Thresh's capicin and Mr. Wyndham's esprit des œufs also occupy positions in Messrs. Morson's case.

Messrs. George Atkinson & Co., of Aldersgate Street, make a good display of the products for which their house is noted: iodide and bromide of potassium, iodide and oxide of mercury,

and other iodides and bromides, iodine, oils of cloves and ebs, and expressed oil of almonds.

The North British Chemical Company exhibit some handsome specimens of iodine and bromine, and the salts derived from these. They also exhibit some seaweed charcoal, and specimens representative of its application to sewage.

Messrs. Allen & Hanbury, who give one of their addresses as Longwa, Norway, also make a prominent feature of cod-liver and their Hawker's patent jujubes are elegantly displayed.

Another series of opium alkaloids, with biberine, salicin, proform, and a few other chemicals, are shown by Messrs. J. McFarlane & Co., of Edinburgh.

Messrs. W. T. Bush & Co., of Artillery Lane, make a very attractive display of essential oils, fruit essences, and harmless coloring matters for confectionery.

Messrs. Burgoyne, Burbidges & Co. have set out their case in the most handsome manner, and the scale preparations and useful chemicals with which it is filled do the utmost credit to his firm.

Messrs. Baiss Brothers have a collection of choice specimens of drugs.

Messrs. John Richardson & Co., of Leicester, and Messrs. & T. Kirby & Co., of Newman Street, Oxford Street, are the representatives of English elegant pharmacy. These firms take a somewhat similar display, and exhibit the art of pill-making brought to its highest perfection.

Messrs. Charles Lowe & Co., of Manchester, and Messrs. Adler & Biekerdike, are exhibitors of carbolic acid and its derivative. The first-named firm would have had a handsome block of pure crystals of carbolic acid enclosed in glass, but unfortunately on the journey some foreign substance had got into the case and had discoloured all the frontage.

Mr. P. Spence, of Pendleton, has erected a small monument of blocks of crystallised alum, standing some 12 feet high, about 6 feet wide, and 4 feet deep.

There is an interesting case shown by Mr. Readman, of Glasgow, in which are series of specimens, showing the various stages in the manufacture of citric acid, phosphorus, phosphate, white and stannate of soda.

Messrs. Charles Tennant & Co., of the St. Rollox Works, also exhibit series of specimens illustrative of their processes of manufacturing bleaching powder and alkali; also their manager, James Mactear's process for regenerating sulphur from alkali waste.

The Chemical section also includes a good many exhibits of varnishes, polishes, and colours:—Messrs. John Mackey & Co., of Edinburgh; Messrs. Reade Bros., of Wolverhampton; Messrs. Godney, Clark & Co., of West Ham, Stratford; Messrs. Son & Nicholson, of Stratford; are among the exhibitors of varnish. Messrs. Mander Bros., of Wolverhampton, had nearly set up their case with gum, varnishes, &c., when the whole structure came down and left a heap of ruins. This, it is said, is likely to end in a law suit between that firm and Mr. Sage, case maker.

Messrs. Mawson & Swan, of Newcastle, exhibit photographic chemicals. Price's Candle Co. have a small but pretty exhibit of candles and the other products of their firm. Mr. G. E. Tomhead, of Aberdeen, has some specimens of cod liver oil with sine, pepsine wine and chemical food; and Mr. Wm. Sims' "renewer and botanical distiller," of Reading, has a case to exhibit a patent botanical distillation for the cure of deafness.

In the same class with chemicals are included mineral waters and artificial aerated waters. Messrs. Bewley & Draper have the largest case of these, and close by are cases with specimens of the manufactures of Messrs. Wm. Corry & Co., Belfast; Messrs. Cantrell & Cochrane, Belfast; Messrs. Schweppe & Co., of the British & Foreign Mineral Water Co., Messrs. Irman & Co., of Huddersfield, and Messrs. Sampson Bros., of Sutton in Cheshire.

The English perfumers make a very creditable display, though exhibition *habitués* will recognise most of the cases as familiar objects. Mr. Rimmel shows a great variety of products, very tastefully set out. He has also a small "perfumery museum," giving specimens of rare substances and raw material. The labels give a good bit of information in respect of these, and also name their average commercial value. In the centre of Mr. Rimmel's pavilion is a new apparatus, invented by him and called the myrogene. This will be worked daily. Freshly cut flowers are placed lightly in a sort of percolator, and a series of narrow tubes descending from the top of the stand (some 10 or 12 feet) a sudden shower of specially prepared

spirit is passed rapidly and with great force through these flowers. By this means the perfume is instantaneously extracted. Mr. Rimmel says it takes the "soul" out of the flowers, and you have almost straight from the garden a scent for your handkerchief. The idea was suggested by noticing that after a sharp shower flowers are almost scentless. In the myrogene we have the shower, and a more powerful extractor, than water only. Messrs. J. & E. Atkinson have a very handsome case filled with beautifully cut-glass vessels of perfumes. This case is not so well placed for show as it deserves to be. Messrs. A. & F. Pears make a very pretty exhibition of their transparent soap. Piesse & Lubin make a bold display. The Crown Perfumery Company and Messrs. A. Rowland & Sons have neat exhibitions. Messrs Osborne, Banor & Choseman, Messrs. Yardley & Co., and Napoleon Price & Co. exhibit their products in a tasteful style. In this class there are also two Jersey exhibitors of Eau-de-Cologne—Mr. P. Lurendeau and Mr. George Ince.

In the machinery annex are to be found several exhibits from leading aerated water machinery makers. Messrs. Hayward, Tyler & Co. have exhibited a selection of their apparatus for making and bottling water, a syphon bottling apparatus, and Barrett & Ellis's process of self-stoppering. This firm has several exhibits in other classes.

Messrs. Geraut & Co. exhibit their continuous apparatus—a bottling, corking, and self-acting syrup-dosing machine. A similar apparatus for fitting syphons, and specimens of syphons and seltzogene.

Messrs. Barnett, Son & Foster occupy a large space with some half-dozen machines showing the various styles they manufacture. Some of these are kept at work. Their stand also includes some handsome specimens of marble counter fountains for dispensing with iced fruit drinks, and they also show Codd's patent bottling process. A very ingenious process for keeping beer sweet is also shown here. Briefly, it consists of a carbonic gas generator in connection with the beer-cask, acting by valves in such a manner that, as the liquid is drawn the carbonic acid gas effectually prevents any access of air. Mr. Foster was busy fixing his machinery with several assistants a few days before the opening when the Prince of Wales with a distinguished party came past. The Prince stopped to look, and Mr. Foster took the opportunity of suggesting that H.R.H. might think it presumptuous if a glass of soda and b. were served out. The Prince proposed that the experiment should be made on him, and he and his group, with a long tail of fashionable followers, tested the results of Messrs. Barnett, Son & Foster's apparatus with generally expressed indications of hearty approval.

We shall continue our notice of certain features of this Exhibition in subsequent numbers, and we hope soon to gather some interesting details from foreign sections. At the time of our visit, however, there was no court sufficiently advanced to allow of a report in this respect. America makes a specially prominent exhibition of pharmaceutical products; indeed, these seem to be her "leading articles."

Messrs. Tilden & Co., chemists and pharmacutists, of New York, occupy a large space, some 20 feet square, and have erected a bold pavilion wherein they show specimens of their many products for physicians' use with "Shaker" drugs, native herbs, &c. They are represented at the exhibition by Dr. Merckel.

Messrs. Wyett Bros., of Philadelphia, are exhibitors of pharmaceuticals; Messrs. C. T. White & Co., of New York, of fine chemicals; Messrs. F. W. Howitt & Bros., New York, of native drugs; Mr. H. G. Hotchkiss, of Lyons, New York, Messrs. Hale & Parshall, of the same place; and Messrs. Fritzsche Bros., of New York, all exhibit essential oils; Messrs. H. & J. Baker, of Philadelphia, "crystal" castor oil with camphor, borax, &c.; Messrs. S. S. White, of Philadelphia, show dental appliances. The last European competition at Vienna won for this manufacture great credit and a diploma of honour. The Philadelphia College of Pharmacy sends a collection of native drugs which will, no doubt, prove interesting, but we did not see it unpacked.

The Fine Art section is a little out of our line, but among the British pictures lent for exhibition we notice some three or four gems from the collection of Mr. Alfred Bishop, the well-known maker of granular effervescent salts. There seems to be a tendency among our wealthy pharmacists towards the refined and delightful pleasures which the painter's art can yield.

Scientific Notes from Foreign Sources.

POTOMIN, AN ALKALOID OF THE CORPSE.*

PROF. SELMI has succeeded in extracting, by means of alcohol, from four corpses which had been buried from one to six months, an alkaloid to which he has given the above name. It was thus prepared. Portions of the bodies having been subjected to the action of alcohol, the spirit was treated with sulphuric acid and distilled in an atmosphere of hydrogen. The residuum was filtered to get rid of fatty matters, and precipitated with acetate of lead. The lead precipitate was again filtered, and the excess of lead removed by a stream of sulphuretted hydrogen. The pale yellow fluid thus obtained was evaporated to a syrupy consistency and decomposed with baryta. It was next evaporated with ether, when a substance of peculiar smell, and somewhat astringent, but not bitter taste was yielded. According to Prof. Selmi, this potomin, when injected into the jugular veins of frogs and rabbits produced no toxic influence. But Drs. Morrigia and Battistoni, in repeating and somewhat varying Prof. Selmi's experiments, found that by means of Amyl and Ethyl-alcohol poisonous principles could be extracted.

METHOD OF DETECTING AN ADMIXTURE OF COTTON IN LINEN FABRICS.†

LINEN threads, when dipped in an alcoholic solution of the substance known in commerce as *aurin* or yellow coral, and subsequently washed in a concentrated aqueous solution of carbonate of soda, acquire a rose-red hue, the cotton threads remaining colourless. Accordingly, if a small piece of the suspected fabric is frayed at the edges and thus treated, the presence of colourless threads will at once reveal the presence of cotton.

NITRATE OF SILVER IN NEURALGIA.‡

OUR German contemporary gives a short account (from *L'Union Médicale*) of some experiments by Le Dentu on this subject. He has found hypodermic injections of two or three drops of a 20 per cent. solution of nitrate of silver of singular efficacy in the treatment of neuralgia, sciatica, and arthritis.

PREPARATION OF TINCTURE OF KINO.

To prevent the gelatinisation of this tincture, M. P. P. Fox proposes in the "*Bulletin de la Société royale de Pharmacie de Bruxelles*," to make it with a mixture of 4 parts alcohol, 1 part water, and 1 part glycerine instead of spirit.

KARISKA.

M. STANILAS MARTIN recently called the attention of the Société de Pharmacie de Paris to some seeds belonging to the family Zingiberaceæ, and known to the Abyssinians as *Kariska*. The drug is very rich in fixed and volatile oil, and possesses a warm aromatic and slightly sweet taste. It is valued by the natives, probably on account of its tonic properties.

HISTORY OF PHARMACY.

THE Société de Pharmacie de Paris has appointed a committee of five to collect materials for a history of Pharmacy. Its members are MM. Dubail, Mayet, F. Vigier, Sarradin, and Wunflart. Dr. Redwood and this committee forcibly remind us of Dr. Johnson and the Academy in relation to dictionaries.

FRENCH ANALYSES.

Two Chemists of Paris, having had the good fortune to agree upon the analysis of a certain cargo of sugar, hastened to publish the unexpected fact in the "*Bulletin des Halles*." This led to the revelation that another disagreed with them to an extent which would make 9d. per cwt. difference in the commercial value of the article. Another case has come to light in which the analyses by the chemists of Nantes and those of Paris differ as much as two per cent.

A CHINESE REMEDY.

IN the course of a report, which has just been published by order of the Inspector-General of Maritime Customs in China, Dr. F. Wong gives us some curious particulars respecting a strange remedial agent employed by the Chinese in cases of *Cynanche tonsillaris* (quinsy, &c.). The disease they term *Ngo-how*, or "Goose-throat," and the remedy in question is called *How-tsao*, a soft stone not unlike biliary calculus in appearance. It is expensive, being worth 20 times its weight in silver, and is said to come from Siam. Twenty or thirty grains of this in powder, taken in water, is thought to be very efficacious. Dr. Wong mentions having seen a case where this remedy was given, and where it certainly appeared effective, after gargles and astringents had been applied in vain. The specimens of the stone which have come under his notice appear like animal concretions, and are of various sizes, some being smaller than pigeons' eggs, while others are as large as hens' eggs. The story goes that, when a monkey is wounded, the animal, from its natural instinct, picks out the proper medicinal herbs, masticates and applies them to the wound, so that successive layers are in this way laid on so as to form a mass. In time the wound heals, and the lump of dried herbs falls off; it is then picked up by the Siamese, found by them to possess peculiar virtues, and sent in small quantities to China as a drug.—*Nature*.

We may mention that some early notes on Chinese materia medica, which were apparently unknown to Daniel Hanbury, F.R.S., and which are not referred to in his "*Notes on the Chinese Materia Medica*," are to be found in the "*Miscellanea Curiosa sive Ephemerides, &c.*" of the "*Academia Cesarea Naturæ Curiosorum, &c.*" for the years 1686-88, &c. These notes are by Cleyer, the author of the list of Chinese drugs so often quoted in the work just mentioned.

PANCREATINE.*

Two classes of pancreatine are found in the French market, the German, which always contains much inert matter, and the French, which, though often badly prepared, is still unmixed with things extraneous. Good pancreatine should possess the following characters. It is a yellowish-red hygrometric powder, its smell and taste are strongly animalised, it contains 70 per cent. of soluble matter, and its solution, like albumen, coagulates by heat. It digests 30 times its weight of albumen, saccharifies 8 times its weight of starch, and completely emulsifies at least 10 times its weight of fat.

LEAD IN WHITE BISMUTH.

M. CARNOT has examined for lead 7 samples of bismuth subnitrate. He has found traces of this metal in each of them, varying in quantity from 11 to 98 parts per 10,000. As this substance is sometimes administered in doses equivalent to 150 or 300 grains per diem it becomes a question what effect doses of $\frac{2}{10}$ to $\frac{1}{10}$ of a grain of lead repeatedly administered may have on the system.

ATROPINE AND DATURINE.

IN 1850 A. von Planta asserted that atropine and daturine were identical. This led to the practice of making the salts of the former not only from the roots and leaves of belladonna, but also from the leaves and seeds of stramonium. To this usage A. Poehl has recently traced the acknowledged uncertainty in the medicinal activity of atropine and its salts. The identity of the alkaloids was questioned in 1852 by Schroff, who found that their medicinal action was similar, but that atropine was twice as powerful as daturine. Erhard, in 1866, found that the crystalline form of some of their salts was different. Poehl has confirmed these suspicions by proving that, while atropine is optically inactive, daturine turns polarised light to the left, its specific rotating power being 14.12°. Platinic chloride precipitates the salts of atropine, but not those of daturine. Picric acid, on the contrary, precipitates daturine salts, but not those of the former.

IMPURE MAGNESIA.

H. C. ARCHIBALD, of Philadelphia, U.S., states in the April issue of the *American Journal of Pharmacy* that he has found

* *Zeitschrift des Allgemeinarztes, Apothek-Vereines*, March 1, 1878.

† *Pharmaceutische Zeitung*, March 2, 1878.

‡ *Pharmaceutische Zeitung*, February 27, 1878.

* *Répertoire de Pharmacie*, M. Th. Defresne.

† *Répertoire de Pharmacie*, M. A. Carnot.

per cent. of carbonate and 1.6 per cent. of sulphate of zines in a sample of heavy oxide of foreign manufacture. It is more gritty and bulky than the pure oxide.

TINCTURE OF CANTHARIDES.

The tincture of cantharides of the present United States Pharmacopœia is made by percolating a troy ounce (480 grains) of the sufficient diluted alcohol, sp. gr. .941, to make two thecaries pints (33½ ounces imperial measure). The British Pharmacopœia is made by macerating ½ ounce (109½ grains) in 20 ounces of proof spirit (sp. gr. .920). Mr. G. W. Kennedy, in the *Canadian Pharmaceutical Journal*, proposes that in the revision of the United States Pharmacopœia in 1880 the menstruum shall be changed to the alcohol of the United States Pharmacopœia, which contains 1 per cent. less water than the spiritus rectificatus of the British Pharmacopœia. The advantages of the change are, that the cantharides will be more thoroughly exhausted, the tincture will not become turbid as it soon does now, but will remain of a clear, elegant, greenish yellow tint, and it will mix readily with castor oil, when ordered in hair tonics and liniments.

ANALYSIS OF VINEGAR.

Writing on this subject in the *Pharmaceutische Zeitung* of the 1st ult., Dr. Jehn expresses his regret that manufacturers have not as yet agreed upon a uniform standard of comparison of length, some estimating this by the supposed contained proportion of anhydrous acetic acid, others by that of hydrated acetic acid, and a third set referring merely to acetic acid, without specifying the hydrated or anhydrous form. This latter method is preferred by Dr. Jehn on the ground that anhydrous acetic acid cannot exist as such in solution, and that the term hydrated acetic acid is not in harmony with recent chemicalomenclature. He has been informed by many manufacturers that it is impossible to prepare a vinegar containing more than 5 per cent. of acetic acid ($H_2C_2H_3O_2$), which represents about 6 per cent. of the so-called anhydride.

METHOD OF GETTING RID OF RATS WITHOUT EMPLOYING POISON.*

The following method is suggested in reply to a correspondent of a previous number. Having first for some days placed pieces of cheese in a particular part of the premises, so as to induce the rats to come in great numbers to their wonted feeding place, a piece of cheese is fixed on a hook about a foot above the floor. The rat leaps at this, and, of course, remains suspended. Thereafter, we read, all the other rats take sudden fright, and at once quit the house in a body.

NATURAL RESOURCES OF CHILI.†

It has been long suspected that large quantities of guano and nitrate of soda—perhaps, even of silver and copper—lie buried in the desert of Atacama, to the north of Chili, and some enterprising individuals have made exploring expeditions for the purpose of determining the point. But, owing to the want of water in the desert, and no less to the absence of any means of communication with the sea-coast, either for the purpose of obtaining provisions and other necessary supplies, or of exporting the products of their industry, the undertaking was found to be too great for private enterprise, and we are glad to find that the Chilean Government has now taken the matter in hand, having sent two commissions for the purpose of investigating the “capabilities” of Atacama. It is gratifying to add that their patriotic exertions have been rewarded by finding the wealth of the desert to have been in no degree exaggerated, while the difficulties of communicating with the sea-coast have been found not to be insuperable. This will afford a new market for the services of European capitalists and engineers.

PLASTILINA.‡

This substance has for some time entered into commerce as a substitute for the clay employed by modellers, being equally plastic, while, from its not requiring constant dampening, it is

much more agreeable to work with. Its composition has been ascertained to be the following:—Oleic acid and fat, 51.2; oxide of zinc, 5.2; sulphur, 30; clay, 13.4 per cent. It is prepared by heating together oleic acid and oxide of zinc in the requisite proportions. The resulting stearine-like mass is melted with oil and wax, the sulphur and clay being added in a finely pulverised state, with constant stirring. It can be sold at one Gorman mark per kilogramme.

REACTIONS OF CODEIA.*

It was long asserted that codeia and some other alkaloids of opium when dissolved in sulphuric acid gave a blue colour with oxide of iron. This statement seems first to have been controverted by Calmberg, whether from his having employed impure chemicals, or having failed to exercise due care in his experiments, was for some time uncertain. The explanation of the discrepancy seems to be given in a letter from Mr. David Linds, of Jamaica, who finds that if the codeia be dissolved in concentrated sulphuric acid without the aid of heat, a drop of solution of perchloride of iron, if added, will float on the surface without giving rise to any characteristic colour; but on the application of heat the blue shade at once appears, being replaced by red on the addition of water.

NEW KIND OF FAT FROM HOLLAND.

We read in the *Pharmaceutische Zeitung* an account of a kind of fat now exported from Holland, but said to come originally from America, and, what is still more suspicious, to bear the name of a New York firm which has no existence. It is vended by the firm of H. W. Maaser in Amsterdam, and also by that of J. Goldschmidt in the same city. Its peculiarity consists in its containing no less than 22 per cent. of water, on account of which it has a purer white colour than other similar substances; notwithstanding the addition of water, however, it is sold at a price but little below that of other fats. The proportion of water is easily ascertained by dissolving a known weight of the substance in benzine, filtering, again washing with benzine, and evaporating the filtrate in a suitable vessel.

ACTION OF ALCOHOLIC SOLUTION OF FIXED ALKALI ON CHLOROFORM.†

M. Berthelot gives us the results of some recent experiments of his own on this subject, which, as will be seen, do not correspond precisely with those of Dumas. The last-named chemist was of opinion that the reaction consisted in the breaking up of the chloroform into formate of potash and chloride of potassium, thus:— $C_2HCl_3 + 4(KO,HO) = C_2HKO_4 + 3KCl + 4HO$. M. Berthelot, however, did not obtain so simple a reaction; in every case observing the development of a certain yellow or brown resinous substance. He succeeded in more nearly obtaining the typical reaction when an aqueous solution of the salt was employed, a little alcohol being merely added at the moment when decomposition took place. But as the chlorine in the resulting KCl was less than that in the chloroform employed, M. Berthelot concludes that some peculiar chlorine compound was formed during the reaction, which might advantageously be made the subject of further experiments. The nature of the brownish resinous substance observed by M. Berthelot ought also to be inquired into, especially since it seems to have escaped the notice of Dumas.

NATURAL AND ARTIFICIAL OIL OF MUSTARD.

We learn from the circular of Messrs. Heine & Co., Leipzig, that since the manufacture of allyl-sulphocyanide, or artificial oil of mustard, has been brought to its present state of perfection, the distillation of the genuine oil from the mustard seeds can hardly be remuneratively undertaken. It is true that when an attempt was made to introduce the artificial oil into commerce under its real name it did not find a large sale; but when vended under the name of oil of mustard it obtained ready acceptance. The imposition is certainly as harmless as any form of imposition can be, for it seems the natural and artificial oils are identical, not only in chemical properties, but, what is of more importance, in physiological action.

* *Pharmaceutische Zeitung*, April 24, 1878.

† *Le Moniteur des Produits Chimiques*, April 25, 1878.

‡ *Pharmaceut. Post*, Vienna.

* *Archiv der Pharmacie*.

† *Pharmaceutische Centralhalle*, April 11, 1878, from *Chem. Centralblatt*.



For particulars of Advertisements, Subscriptions, &c., please refer to the first page of Literary matter. An Index to the Advertisements contained in this issue will be found in the front portion of the Journal.

OFFICE—Colonial Buildings, 44a Cannon Street, London.

RENDALL'S THEOBROMINE, OR CONCENTRATED COCOA,

BEING a first-class article, and nicely got up, commands a good sale by all Chemists who bring it under the notice of their customers.

In 1s., 2s., 3s. 9d., and 7s. 6d. tins, through the Wholesale Houses, or direct from the Proprietor,

J. M. RENDALL,
28 QUEEN STREET, EXETER.

Chief Wholesale Agents—

SANGER & SONS, 150 OXFORD STREET, W.

SEE SEABURY & JOHNSON'S Advertisement of INDIA RUBBER POROUS AND SPREAD PLASTERS on page 105.

SANITAS.

THIS incomparable fluid is colourless, non-poisonous, and agreeable. It is harmless to furniture and linen, and is "THE ENEMY OF DISEASE." **SANITAS** is "a valuable Antiseptic and Disinfectant."—*Times*. **SANITAS** is "first favourite among Disinfectants."—*Lancet*.

In bottles (1st Quality only) at 1s., 1s. 6d., and 2s. 6d.; in gallons at 20s. (1st Quality), and 5s. (2nd Quality).

TOILET SANITAS.—As a mouth-wash; for the bath; and for all the purposes of toilet vinegars. In elegant bottles at 2s. 6d.

TOILET SANITAS SOAP embodies the healthful principles of Sanitas. In boxes of three tablets at 1s. 6d.

CAUTION.—These articles bear the Trade Mark of the Sanitas Company (Limited), and may be had of Messrs. BARCLAY & SONS, EDWARDS & SONS, LYNCH & CO., MATHER, MILLARD & SONS, MAW, SON & THOMPSON, NEWBURY & SONS, SANGER, SUTTON, and of all Wholesale Houses, or of the Company, 57 Moorgate Street, E.C.

Special Quotations for Shipping and Export Orders.

PAMPHLETS AND PARTICULARS FREE ON APPLICATION.

PURE CRUSHED LINSEED.

PETER MUMFORD & SON'S PURE CRUSHED LINSEED.

BEST QUALITY. NO OIL EXTRACTED.

Ground so as to retain the natural colour of the seed without being heated.

22s. per cwt. Special Quotations for Larger Quantities.

REPORTS AND ANALYSES ON APPLICATION, POST FREE.

Newcastle Granary & Steam Mills, Farrington Road, London.

IMPORTANT TO CHEMISTS, SODA WATER MANUFACTURERS, AND OTHERS.

Removal of Lead from Water.

THE SILICATED CARBON FILTER

Entirely removes Lead from Water, thus meeting the complaints that arise from time to time as to the presence of Lead in Aërated Waters.

For confirmation of this assertion, see the opinions of such authorities as Dr. BARTLETT, Professor WANKLYN, and others, at page 74, December, 1876.

REDUCTION IN PRICES.

GENERAL MINERAL WATERS DEPÔT
27 MARGARET STREET, REGENT STREET,
LONDON.

HOMŒOPATHIC MEDICINES.

E. GOULD & SON,

*Chemists by Appointment to the London Homœopathic Hospital,
Manufacturing Homœopathic Chemists,*

Are desirous of appointing Agents for the Sale of their Preparations in various parts of the United Kingdom and the Colonies.

For Particulars apply at 59 Moorgate Street, E.C.

ANALYSED TEA ASSOCIATION

BUSH LANE, LONDON.

Chemists only are Agents in about 300 towns in England alone.

A Certificate of Analysis accompanies every Pound of Tea.

PARTICULARS OF AGENCY ON APPLICATION TO MANAGER.

The Teas can be obtained through nearly all the Wholesale Druggists.

EDITORIAL NOTES.

REPORTING THE COUNCIL MEETINGS.

In accordance with the wishes of many of the leading pharmacutists in Great Britain, it is our intention to make an application to the new Pharmaceutical Council for the admission of our reporter to its monthly meetings. We made a similar application in July, 1869, and, on that occasion, two gentlemen only (Messrs. Brady and Carteighe) voted for us. Neither is at present on the Council, but there is sufficient reason for us to anticipate a better reception now than nine years ago.

Mr. Betty, if he should happen to enjoy a seat on the next council, will, probably, again protest against granting any favour to a mere commercial enterprise like our journal. He objects to provide material for our columns, or to aid our prosperity in any way. Possibly, he sees some mysterious means whereby we might profit largely by the "favour," if granted, for ourselves, we confess we see no such prospect. It seems to us that the Pharmaceutical Society alone will reap whatever benefit may accrue from the presence of our reporter in the Council room; and this benefit, too, will be gained with the minimum of credit to ourselves, for it cannot be doubted that the presence of an independent reporter will at once ensure an improvement in the quality of the official reports.

We hope that those members of the Society who think with us, that a freer publicity might with advantage be given to the consultations of the council, will use their influence with those who will have to decide the question. From those who do not fully agree with us we may, at least, claim the courtesy of a candid consideration of our request; so much is surely due to any disinterested attempt to serve the society and the trade generally.

THE TWO REPORTS.

Pharmaceutical Council and the Committee of the Trade Association have issued their respective reports, which we get elsewhere.* Coming together like this they necessarily elude comparison. The financial statements are particularly noteworthy. The Pharmaceutical Society has an income nearly 10,000*l.*, while the Trade Association has only saved about 1,200*l.* During the year the Pharmaceutical Council has managed to save something over 2,000*l.*, out of time, and the society now has to its credit in the Bank of England the handsome sum of 20,000*l.*, and almost another 2,000*l.* to the credit of the Benevolent Fund. The Trade Association, on the other hand, began the year with 600*l.* in hand, and closes it with 100*l.* less. In other words, its income has been insufficient by 100*l.* to meet expenditure. The official work, such as examinations and registrations, which falls on the Pharmaceutical Society, and for which it receives a large portion of its income, makes it impossible for us to compare the expenditure of the two societies generally; but we can look at separate items, and see in which case the best result of cash is obtained. The item which gives us the best opportunity for comparison is that of "law charges"; the Pharmaceutical Council spent 246*l.* in law during the past year, while the Trade Association shows an expenditure of 370*l.* during the corresponding period. The legal business of the year is somewhat vaguely referred to in the report of the Council. As nearly as we can remember it has been limited to the prosecution of a case of impersonation at the examinations (only a part of the cost however falling into this year's accounts), the prosecution, before a magistrate, of the pseudo co-operative stores in Tottenham Court Road, two or three county court cases, and the negotiations between the solicitor of the Society and the solicitor of the Apothecaries Society.

The Trade Association has had a two days' trial in the Court Exchequer, and has commanded the services of three first-class barristers; has collected evidence in 13 cases of infringement of the Pharmacy Act, has prosecuted three persons under the 14th section of that Act, and has defended two cases of alleged libel. Besides the public work, the solicitor has attended, we believe, all the meetings of the committee, and has been in regular consultation in reference to Parliamentary and private law affairs.

Without for a moment wishing to see money carelessly wasted, we are bound to say that the trumpery amount spent by the Council on law, with pharmaceutical affairs so unsatisfactory as they are, is the evidence of the one indictment which we have persistently advanced against that body. The last general meeting of the Society indicated not in doubtful tones its resolution to test the power bestowed by the Pharmacy Act in preventing the public sale of poisons by co-operative stores. The members of Council present at that meeting recognised clearly that it was only out of courtesy that they were not pledged to action in this matter. During their year of office they have practically ignored the intimation so distinctly expressed by their constituents, and though as it appears they have agreed upon some amendments which might be suggested in the Pharmacy Act "on the occurrence of a suitable opportunity," it does not seem that we are any nearer to a vindication of our legal rights and of the intentions of Parliament than we were a year ago.

The report seems to imply that it is only within the past year that the Council has discovered that "considerable excitement has been occasioned by unusual activity, apparently on the part of the Society of Apothecaries, but in reality perhaps of the

Medical Defence Association, in the prosecution of chemists for infringements of the Apothecaries Act, 1815." The authors of the report regard it as "obvious that all chemists are called upon to advise as to the nature and uses of the medicines which they sell." In another year or two it may be discovered that this advice is exactly what the Apothecaries Society declare shall be supplied only at their good pleasure, and that it is also exactly the right which the Trade Association is fighting to establish, in spite of the manifest disfavour which their action excites at Bloomsbury Square. The result attained by the pharmaceutical solicitor in his ill-judged endeavour to compromise the dispute, certainly "may be considered reassuring and satisfactory," but we can hardly picture any person capable of exercising a decent degree of judgment on the subject by whom it *will* be so considered.

We have often remarked on the ease with which, in exact accordance with the process of election provided by the Pharmaceutical bye-laws, the Council can be changed so as to bring it into harmony with the views of the members of the society generally. We believe that the voting this year will indicate dissatisfaction with at least a few of our present misrepresentatives. The more influential of the latter will, however, most certainly remain. They are too deeply rooted to be easily got rid of. But this will not be of such great consequence if the new members are men clear about their aims, and resolute in maintaining their principles. Far too frequently the new men in whom we have trusted have made one or two feeble attempts to assert their views, and then have allowed themselves to be sucked into the fascinating gulf of sociable Toryism. We want, as we said, a little party which, regardless of the frowns and manifest vexation of their colleagues, will stick bravely to their colours for at least a year; men who do not mind making themselves disagreeable; men who can go to dinner with a gentleman and resist him to the face the next day. Let us have half a dozen such as these on the Council, and the Pharmacy Act and the rights of pharmacutists will not be interfered with rashly either by medical societies or by civil service associations.

THERE IS A TIDE, &c.

M. MENIER, the chocolate maker, has made a fortune. No one can dispute this fact, but few know that a furious letter from a customer gave him the push that started him up hill. This letter denounced Menier's chocolate as a fraud, because after being kept for some time it turned white. Next morning it was advertised in all the Paris papers: "Buy Menier's chocolate—the only chocolate which turns white with age! See that you get no other! Keep a cake and test it! The only conclusive test of excellence!" and so on, and he was soon wealthy.

ARSENICAL VIOLET POWDER.

Last month a paragraph appeared in some of the London daily papers stating—(1) that Messrs. Evans & Jones, analytical chemists, Leadenhall Street, had discovered 25 per cent. of white arsenic in sundry samples of violet powder; (2) that several children had died from its effects, their symptoms simulating erysipelas; (3) that the probable motive for the adulteration was the excessive cheapness of arsenic; and (4) warning mothers to purchase this material only from respectable tradesmen. Assuming the paragraph to be true, it brought a most serious charge against chemists and druggists who are almost exclusively the purveyors of violet powder. From information with which Dr. Jones has kindly favoured us we learn that the powder in question was purchased from the maker, a small grocer and Italian warehouseman in the East of London, and not from a chemist and druggist. To the hands of this man several of the samples since analysed have been traced. Immediately on discovering the danger Dr. Jones com-

* Foreign subscribers will find these in the Supplement accompanying this number. Home subscribers will receive them with the supplementary issue which we shall forward in a day or two.

municated the facts to the Secretary of State, who placed the matter in the hands of the Local Government Board. To that body is now relegated the responsibility of action in the matter, and for obvious reasons we must at present withhold the name and address of the maker. We have before us an unopened packet of the powder, labelled—

SUPERFINE
VIOLET POWDER,
WARRANTED FREE FROM GDBT.

Manufactory :

[—————]

MANUFACTURED OF

PERSIAN SHERBET, SEIDLITZ & BAKING POWDERS.

Dealer in Hair Oils.

and on the opposite side in heavy letters—

FOR THE NURSERY.

The weight of the powder is sufficient to show a druggist that all is not right. It is sold in ounce packets at 6s. a gross. Dr. Jones is convinced by a variety of circumstances that the admixture was not accidental but intentional. We need make no comments on the case. Druggists will at once understand its atrocity and almost idiotic stupidity. The suggestion that greed of gain was the motive; that it was mixed with violet powder because it was cheaper than starch, does, however, merit a remark. Arsenic is fully four times as heavy as starch; that is to say, a measure that will hold an ounce of starch will hold four ounces of arsenic. As the public purchase violet powder by bulk and not by weight, to make it profitable to substitute arsenic for starch in making it the arsenic must be less than a quarter the price of the latter. Now the price of arsenic for a long while has been at least a quarter of that of the lower grades of starch, so that it is hardly reasonable to suppose that anyone other than a peculiarly stupid person could have adopted the course suggested with an eye to gain.

Considerable prominence has been given to this alarming discovery by several London and provincial newspapers. Of course chemists are tacitly credited with what we may fairly call the crime, but, as we have shown, there is not at present the smallest reason to believe that any one of them is implicated. The public should be set right on this point, and any chemist who will apply to us can have reprints of this paragraph to send to his local newspaper.

THE STUDY OF LATIN.

It may be useful to mention that courses of lectures on Latin are delivered by Mr. Joseph Ince, at the College for Men and Women, Queen Square, Bloomsbury (founded by Professor Maurice), and that pharmaceutical students or chemists' assistants would be eligible to attend them. The next course will commence on May 23, at 8.30 P.M., and will be proceeded with every Thursday evening at the same hour for some ten or twelve weeks. By request of the students the Eclogues of Virgil will be the subject on which the lectures will be based. The fee for the course is 4s. It is only fair to Mr. Ince to add that his task as lecturer is quite an honorary one; the lectures are given in the fullest sense of the word.

BOTANICAL LECTURES.

On Saturday morning, May 11, Professor Bentley commenced his practical demonstrations of Botany at the Royal Botanic Gardens, Regent's Park. These lectures will be delivered on

every successive Friday and Saturday, throughout the course, at 8 o'clock A.M.

It cannot be too generally known that the gardens will be open to students one clear hour before the demonstration in the Museum, so that an opportunity will be thus afforded for direct personal investigation of the plants. In this manner, the subject of each lecture may be thoroughly understood, and its details mastered. Notwithstanding the drenching rain there was a good attendance of old and new students. The Professor materially added to the value of his definitions by quoting some well-known specimen in illustration, and carefully recapitulating the definition and its illustration at the close of each section. The leaf, its varieties of form and its different modes of insertion, was the chief topic of the opening discourse.

OPIUM PRODUCTION IN AFRICA.

The Indian journals are noticing a new enterprise, called by some of them "a little cloud on the firmament of Indian finance." Señor Ignacio José de Paiva Raposa, in other accounts called B. Piava Rapoza, visited India a season or two ago, and proceeded to Malwa, where he studied the conditions and methods of cultivating the poppy and harvesting its juice. He then sailed to Mozambique, taking with him skilled cultivators and selected seed. A company had been previously floated at Lisbon, with a capital of 178,000*l.*, in 2*l.* 5*s.* shares, under the title of the Mozambique Opium Cultivating and Trading Company. The chief promoter, the gentleman we have mentioned, receives 50,000 acres of open, unappropriated, and uncultivated land belonging to the State in Mozambique, and has preference in the choice of "such lands as are suitable for the cultivation of the poppy plant," and also "the exclusive right for twelve years to export opium free of duty through all the custom-houses of the province." The plants are reported to thrive vigorously, and the pods to be larger than those of the Malwa plant. There seems to be every reason to anticipate a successful issue to the enterprise. It is to be hoped that the mistake of leaving the juice for long periods undried, which so much depreciates the value of the Indian drug, will be avoided in South Africa.

AN ANALYST'S ERROR.

DR. SWETE, the public analyst for Worcestershire, has recently explained to the Quarter Sessions how a discrepancy had arisen between his analysis of milk and those of Dr. Bostock Hill public analyst for a neighbouring county, and of the chemists at Somerset House. At the time when the milk was received Dr. Swete had staying with him a relative, who, finding the Doctor overwhelmed with work, offered to assist him by weighing some of the vessels used in the analysis. In recording the weight of one of these an error was made which caused one sample which was really pure to be reported adulterated. The chemical part of the analysis had been conducted with great care by Dr. Swete personally, and the assistance rendered him was so small that he had forgotten it until he was convinced by the analyses brought for the defence that his own report was wrong. He then again went over his books, and so discovered it. Dr. Swete's apologies, both verbal and pecuniary, were profuse, and he stated that in future he should conduct all analyses in duplicate, so that any error would be at once detected. The Chairman of the Sessions (Earl Dudley), after a consultation with the magistrates, was graciously pleased to tell Dr. Swete that no further action would be taken in the matter, and to remark that he (Dr. Swete) had placed himself in a very awkward position. The curious feature of these blunders is that they are invariably prejudicial to the trader—a matter which is generally regarded as of but small importance until the analyst finds himself inconveniently placed.

POROUS PLASTER.

PROFESSOR JOSEPH P. REMINGTON, at the Philadelphia Pharmaceutical Meeting on March 19, described a tool by which ordinary hand-spread plasters might be perforated like those made by machinery. Manufacturers had introduced a large number of "porous" plasters, but these were admittedly unreliable, and, after a lengthy trial, physicians are ordering plasters to be spread when required, to make sure of obtaining the drugs prescribed. To provide one of the advantages of the machine-made goods, Professor Remington has designed a tool which he has not yet baptised. It consists of a brass wheel, $\frac{3}{4}$ in. wide, $\frac{1}{2}$ in. in diameter, with two circular depressions turned out of each end, $\frac{1}{4}$ in. deep, leaving a hub on each end of the wheel, through which a steel axle passes into the prongs of the steel handle, which is driven into an ordinary tool handle 9 inches long. The wheel is studded with 16 punches, arranged on either side $\frac{1}{2}$ in. apart alternately; these punches are of steel, tapered, and are $\frac{1}{4}$ in. long and $\frac{1}{8}$ in. bore at the end, making a $\frac{1}{8}$ -in. perforation.

The design closely resembles the instruments used by binders in "tooling" the ornamental covers of books.

The plaster to be "poroused" should be tacked to several sheets of paper on a rather low counter. The tool is then pressed in water, and run over the surface from the operator with sufficient pressure to perforate the material. By one process a double line of holes is produced.

A figure showing the instrument in use, and the account from which we have drawn these particulars, are given in the *American Journal of Pharmacy* for April.

STATISTICS OF GERMAN PHARMACY.

The *Pharmaceutische Zeitung* has lately published a table, prepared from official statistics, showing the distribution of pharmacies in Germany, and the number of persons engaged in pharmacy in the different divisions of the Empire.

There are in the German Empire altogether 4,416 pharmacies. Of these, 2,363 are in Prussia, 605 in Bavaria, 255 in Wurtemberg, 232 in Saxony, 210 in Alsace-Lorraine, 183 in Baden, 107 in Hesse, and the rest distributed in the smaller states of Germany. Hamburg possesses 56; Bremen, 13; and Lubeck, 7. In the total, 1,485 are established in towns with 5,000 inhabitants and upwards. There are 1,643 pharmacies in which there are no assistants or apprentices, 2,367 with one or two, 346 with three or four, and 60 with five or more. Of these important establishments 39 are situated in Prussia, 11 in Saxony, 4 in Bavaria, 2 each in Wurtemberg and Brunswick, and 1 each in Mecklenburg-Schwerin, and Bremen. The total number of persons engaged in pharmacy, in the Empire, is 9,141, of which 1,665 are either proprietors or managers, 1,796 fully qualified assistants, 1,511 assistants (not fully qualified), and 1,369 apprentices. The average proportion of the pharmacies throughout Germany is 1.03 per 10,000 inhabitants. This proportion varies considerably. In Prussia it is 0.92 per 10,000; in Saxony, 0.84 (the lowest figure); in Bavaria it is 1.20; in Alsace-Lorraine, 1.37; in Hamburg, 1.44.

ANALYSTS AND DECIMALS.

In a report of prosecutions of aerated water manufacturers at Luddersfield, which will be found in our legal columns, Mr. George Jarman, the borough analyst, swore that .23 grains of metallic copper per gallon would be injurious to the health of a person in the habit of frequently drinking an aerated water which contained it, and that it would be about 1-300th of a grain in a half-pint. We do not know, certainly, what Mr.

Jarman means by drinking soda-water frequently, but on his own showing it would take a man nearly a year to imbibe one grain of metallic copper, supposing that he drank every day one bottle which contained 1-300th of that amount. It has been proved clearly that copper is a normal constituent of many of the larger organs of the body, and that when taken internally it is only absorbed in very small proportion. We cannot, therefore, see very plainly what danger is encountered by the most inveterate tippler of soda-water such as Mr. Jarman represented his samples to be.

But we have in him another specimen of a man no doubt a thorough adept in analysis, but at the same time something of a tyro in mathematics. How Mr. Jarman makes .23 grains per gallon equal 1-300th of a grain per half-pint we fail to discover. A half-pint is the 1-16th of a gallon, and the 1-16th of .23, according to our system of calculation, represents between the 1-69th and the 1-70th of a grain. There is an appreciable difference between this and the 1-300th, which would seriously affect results in any delicate research into which Mr. Jarman might be tempted to venture.

A NEW PROPERTY OF MALT LIQUORS —HOFF'S MALT EXTRACT.

THE world is indebted to an illness, suffered by J. J. Coleman, F.I.C., F.C.S., for the discovery of an hitherto unsuspected, but important property of malt liquors. A symptom of Mr. Coleman's disease was inability to digest food, and great exhaustion produced thereby. Dr. Andrew Fergus called his attention to Hoff's Malt Extract, stating that he had found it efficacious in similar cases. The usual dose—a wine-glassful twice or thrice a day—was taken with the results that food, which had hitherto escaped undigested, was assimilated, and the power of producing animal heat and storing up fat was increased. Other persons—thin, cold, or aged—were induced to become the subjects of experiment, and reported that it was far more sustaining than most alcoholic liquors.

These facts led Mr. Coleman to make an extended series of experiments, which he embodied in a paper read before the Glasgow Philosophical Society on April 17, and published in the *Chemical News* for May 3. For the minute details of the experiments we must refer our readers to that periodical.

Analysis of the Extract proved that, in composition, it closely resembled other malt liquors, differing chiefly by yielding a rather larger percentage of extract. In appearance it resembles porter. From this consideration, Mr. Coleman rejects Hoff's Malt Extract as a misnomer, and replaces it by the simpler title Hoff's Liquid.

The question recurred—To which of the constituents of Hoff's Liquid do its permanent heating effects belong? The 4 per cent. of alcohol it and other malt liquors contain cannot explain them. The scientific experiments of Drs. Richardson and Edward Smith prove that an equal quantity of sugar has a more permanent power of warming, and popular experience confirms their statements. What is it that produced the sensation of being lifted from a feeling of semi-starvation to the condition of being effectually warmed and nourished? The diastase contained in malt is able to convert the starch of four or five times its weight of barley into soluble substances. Starch forms a very large proportion of our daily food, and it seemed possible that, by rendering this more soluble, Hoff's Liquid might produce the effects which had been experienced.

Experiments were therefore instituted to decide this question under conditions which seem to eliminate the possibility of error. Bread was digested with five times its weight of water at blood-heat, and Hoff's Liquid was added. The amount of matter dissolved from the bread alone, and from the bread mixed with

Hoff's Liquid, was compared. The first series of experiments were negative. The soluble matter of the bread proved to be less than one per cent. It then occurred to Mr. Coleman that bread and malt liquors are invariably acid, so that the conditions of intestinal digestion had not been obtained. Other experiments were then tried, in which Hoff's Liquid and other malt liquors, carefully neutralised, were used. These proved conclusively that all malt liquors exert a more or less powerful solvent action on bread and other starchy foods, and that Hoff's Liquid possesses four times the power of Burton ale, and half as much again as London porter. This action is so great as fully to account for the good effects observed to follow their use. We may here mention that Mr. J. Forster, of Adelaide, has recently described, in the *Medical Times and Gazette*, a case of scurvy cured solely by the administration of bottled porter and mixed pickles—three dozen bottles of the one, and a dozen bottles of the other.



AND

Literary Notes.

Payen's Industrial Chemistry. A Manual for use in Technical Colleges or Schools, and for Manufacturers, &c. Based upon a translation, partly by Dr. T. D. Bairy, of Stohmann and Engler's German edition of Payen's "Précis de Chimie Industrielle." Edited throughout and supplemented with chapters on the Chemistry of the Metals, &c., by B. H. Paul, Ph.D. Illustrated with 688 engravings on wood. London: Longmans, Green & Co., 1878.

THROUGHOUT this review we regard and speak of Dr. Paul as the author of the work. That he wishes to take all responsibility for it is evident from the wording of the titlepage.

We are sorry to find that in one point we most unintentionally misrepresented this work in our notice last month. From the title and size of the book, and the general tone of its preface, we formed the conclusion that its sole aim was to give a concise and systematic account of the technical applications of chemistry. A careful analysis of the preface has revealed to us that the author does not by any means confine his attention to this subject, but addresses his book: (1) To manufacturers. (2) To the general public, including, of course, pharmacists. (3) To students in technical colleges. (4) To "the general introduction of chemistry in schools," and hence to schoolboys. (5) It is also to be a manual of general chemistry. (6) It is to be a perennial "source of information as to the nature of particular industrial operations."

We feel that in self-justification we should give the exact phrases which announce the author's intention in these respects. We quote the words of the titlepage and preface, italicising those which seem of most importance.

The title reads thus:—"Industrial Chemistry, a Manual for use in *Technical Colleges and Schools*, and for *Manufacturers*." In the preface we find the following sentences:—

"Some general acquaintance with them (*i.e.*, the various branches of industry involving a knowledge of chemistry) is calculated to be useful to those *not directly engaged in such pursuits*." Again: "A knowledge of chemistry"—such as can be gained here—is "to be regarded as one of the most essential qualifications of those engaged in manufacturing pursuits, and on this account it—(*i.e.*, not industrial, but general chemistry)—has long been made a subject of study in Continental schools. The desirability of adopting a *similar* course in this country is gradually becoming recognised, and it is believed that a work treating of the *technical applications* of chemistry in a *concise* and systematic manner will be of service in promoting the *general introduction* of its study (*i.e.* of general chemistry) in *schools* and technical colleges." "The book will serve as a *manual of chemistry*, no less than as a source of information as to the nature of particular industrial operations."

The magnitude of the task undertaken struck us forcibly the

moment we recognised its full meaning. The general public demand lively treatment and full illustration, with the omission of all dry details. They have moreover no access to experiment. Schoolboys must be thoroughly grounded in the elementary principles of the science, and must not be burdened with masses of facts until they have enough of theory to arrange them easily. Students in technical colleges require the fullest discussion of the phenomena of chemical action, of the principles of all important industries, and, above all, of the very latest suggested or realised improvements of processes, while manufacturers should have minutely detailed accounts of apparatus, of the comparative yield of various processes, and of all precautions necessary to success.

It is hardly necessary to remark that these requirements are contradictory; that what will be suited to the general public will, by the nature of things, be of little use to the technical student; that the minute treatment demanded by the manufacturer will make the book unfit for teaching schoolboys.

In this age of division of labour a book which attempts to do so many things at once is hardly likely to have a cordial reception, if its programme be consistently carried out. And in this case it is evident, from the style of treatment, that the aims of M. Payen, the French originator, and of Herren Stohmann and Engler, the German translators, have had greater influence on the author's mind than his own more catholic sentiments. It is doubtful whether the proposals we have mentioned were more clearly presented to the author's mind than to the public in the preface. The title is after all the true exponent of the character of the book. "Industrial Chemistry" is its main theme, and the concessions made to the wants of the general public and others are but excrescences which contact with the world would rub off, should it live to a second edition.

That it will do so is fairly open to question. Nothing but the date on the titlepage would lead us to suppose that the latest accessible information has been embodied in the work. That date is 1878, but the author only claims to have added to the Continental editions chapters on metallurgy and the chemistry of the metals, and on some branches of industry not included in the French and German works. The fifth edition of Anselme Payen's "Précis de Chimie Industrielle," in two volumes, was published so long ago as 1867, the previous edition having appeared in 1859. From the work of 1867 the German "Handbuch der Technischen Chemie" was not translated, but, "frei bearbeitet," freely adapted to the wants of German students. The first volume, on inorganic chemistry, appeared in 1872 from the pen of Carl Engler, at that time professor in Halle. Two years before the first and second sections of the second volume, on the chemical application of organic compounds, had already been published, these being the work of F. Stohmann, who then held the position occupied two years later by his collaborator. In 1874 the last two sections of the work, the product of the united labours of F. Stohmann, professor at Leipzig, and of Carl Engler, professor at Halle, were published. The lapse of four years between the publication of its first and last portions must inevitably make a scientific work of uneven value, and this fault will be magnified in a translation published four years after the completion of the original.

Practically the German book is the original of the English. No one comparing the latter with the French would suspect they had any connection but that of identity of subject, while the English and German show clearly their relation to one another.

We may here remark that Dr. Paul mentions in his preface as important industries both dyeing and calico printing, but beyond this only casual references are made to them in the body of the work.

The descriptions of industrial processes are far more complete than in any work which finds its way into the hands of students. Works of reference, such as dictionaries and encyclopædias belong, of course, to a different category, and do not come into competition with it. The articles are arranged in the manner usual in English textbooks, the non-metallic elements preceding the metallic, and compound, being classed by their bases. The matter of each article is generally devoted to a single element or compound, and is divided under several headings.

Under *History* we have a brief account of the first notices, and the dates and names of the principal subsequent investigators; sufficient information being supplied to enable a student, who knew his work, to fill up a tolerably complete account of the growth of our knowledge of each substance. Thus, of

Carbon bisulphide we are told: "Bisulphide of carbon was accidentally discovered by Lampadius in 1796, while heating charcoal to redness with pyrites. He described the properties of the body, but he did not succeed in obtaining it again according to the old method until 1803. Meanwhile Clément and Desormes obtained the same substance by the action of sulphur upon charcoal, and named it *sulfure de carbone*. Its composition was long disputed. Berthollet asserted that the compound obtained by Clément and Desormes contained no carbon, but consisted of sulphur and hydrogen only, and Vauquelin expressed the same opinion. In 1811 Chancel laid before the French Academy a paper containing the results of experiments, according to which carbon bisulphide was asserted to contain, besides carbon, hydrogen, and hydrogen as well. The consequence of this assertion of Chancel's was that Vauquelin began a new series of searches into the nature of the body, and eventually succeeded in establishing its true composition." The paragraph on composition gives, as a rule, several analyses of the compound by different chemists. From this section of the article on ultramarine we extract the following:—"Breunlein and Böckmann consider blue ultramarine as consisting of silicates of sodium and aluminium, with sodium pentasulphide. Stein considers ultramarine as a mechanical mixture, consisting essentially of aluminium sulphide and sodium silicate, the latter substance enveloping the particles of aluminium sulphide, and protecting from the action of the air. The same chemist holds that the blue colour of ultramarine is not peculiar to the substance, but due to the optical relations of the ingredients it consists of. He considers that in the same way as an intimate mixture of various black substances with an opaque white matrix (such as finely-divided lampblack, and milk, or black paper behind a sheet of opalescent white glass), gives rise to a blue colour, the blue colour of ultramarine is due to the molecular dispersion of black aluminium sulphide throughout a white matrix."

Under *Occurrence* we have a fairly complete account of the manner in which the substance occurs in nature.

The *characters* are described with some minuteness, and the treatment of *preparation* forms the most distinctive feature of the book.

But that the most recent processes are not included, and foreign ones are made more prominent than English, there would be little exception to be taken to this part of the work. The information given is certainly far more complete than that of ordinary English manuals.

The section on *Uses* might be largely extended with advantage. It is difficult to choose the words in which to advise our readers concerning this book. For our own part, we shall keep it constantly by us, and shall probably make frequent use of it; but, at the same time, our volumes of chemical periodicals for the last few years will not lie neglected. Within the limits we have indicated the work is undoubtedly valuable, and purchasers, with whom the consideration may weigh, may be assured that they will get their money's worth. We can only hope that the present edition may be speedily exhausted, so that a new way may be cleared for an improved successor.

Some curious editorial phenomena which we have met with in the course of examining this work have rather surprised us. A short paragraph from the bottom of page 314 will illustrate what we mean:—

"Varieties of *glass* differing only slightly in their percentage composition have nearly an equal power of resistance. The Bohemian *glass* (potash *glass*), resists re-agents, especially acids, better than soda *glass*. The constituents of *glass* dissolve in about the same ratio as they are contained in the *glass*." On the same page of 67 lines the word "*glass*" recurs no less than thirty-three times! On the next page kelp or varec is said to be obtained by the incineration of *land* and *marine* plants: surely it should be *littoral* or *maritime*. Diameter, which is generally restricted to spherical, cylindrical, or circular bodies, is here frequently used of rectangular bodies, where most people would speak of breadth. On page 248 we are told "that the employment in photography of sodium thiosulphate, commonly called hyposulphite, is due to its capability of dissolving those parts of photographic negatives that have not been acted upon by light!"

On page 279 we find raw borax "admits of being purified," and over-leaf we are told the salt is used "in fixing of certain colours."

On page 312, we are told it is probable "*glass* was made in Germany earlier than in the neighbouring countries, although

it did not attain great dimensions," &c. We suppose that it means that the manufacture, though the sentence says it was the glass itself that was slow of growth. On page 139 we learn that by the rapid evaporation *in vacuo* of carbon bisulphide "a cold of -60° may be obtained." Nothing will justify this expression. These are not specimens which have been carefully sought for, but similar faults are scattered up and down throughout the book, and they do not increase our confidence in the editorial care which has been bestowed on the work.

Muter's Materia Medica: A Key to Organic Materia Medica.

Written for the Students of the South London School of Pharmacy, by Dr. John Muter, M.A., F.C.S., Director of the School, &c. Second Edition, revised and re-arranged. London: published at the School Offices, Kennington Cross, S.E., by William Baxtor, Secretary, and sold by Simpkin & Marshall, and Baillière, Tindal & Cox. 1878. Pp. xxxvi.-480-xxxix. 12s. 6d.

"WRITTEN for students . . . by the Director of the School."

These words, though appearing in printer's ink in the title only, penetrate every page and every sentence of the book. Written for students in the sense of learners, not for students by profession or taste, who delight in the details which disgust others, he who turns to this book need not fear that he will burden his mind with unnecessary details, nor if he learns it conscientiously need he be alarmed lest he should want anything which is absolutely necessary for his purpose.

The present edition is altered in arrangement. It is no longer interleaved, and the "drawers of the museum," which formerly occupied the most prominent place, are now relegated to an appendix, the work of Mr. Dodd, their curator and demonstrator. The natural system of classification has replaced this peculiarly "artificial arrangement," and the author has added diagnoses of the classes and lesser categories. In the description of the chemical properties of the drugs and their products, Dr. Muter has trusted rather to his own experiments than to the generally-received traditions, wherever these contradict one another. As, however, the students fall into the hands of men generally represented as less genial than the Doctor, we do not feel quite sure that this step is so wise as is usual with him. Minor examinees are not so much expected to be familiar with the latest original or novel ideas, as to be well grounded in the "traditions of the elders." Some of the latter may be too conservative to recognise the value of the researches of the Director of the South London School of Pharmacy.

"A special feature has been made" (we quote from the preface) "of the separation and tests for active principles, so as to aid analysts in their work on drugs; and under the head of 'Specially Distinctive Tests' will be found a sort of qualitative course, verified by experiments, which, if followed step by step, will lead to the detection of the articles under examination."

Two appendices are added: one gives directions for the preparation, mounting, and identification of the starches of 47 of the most important articles of food and medicine; the second, as we have mentioned, is a key to the materia medica cabinet. Had not the first edition of the book been suddenly exhausted, that before us would have been enlivened with "illustrations of each of the drugs referred to in the appendix." How few of us can urge such cogent reasons for the shortcomings of our work!

The index shows most conclusively the hand of a scholar who has learnt by bitter personal experience that the value of an index increases in geometric ratio with its completeness. Seldom have we seen one so perfect, or felt so annoyed at the deficiency in this respect of such works as the Pharmacographia and the three-volume Pereira. For the index and the revision of the proof sheets Mr. Joseph Inco is responsible, and to him Dr. Muter makes all suitable acknowledgments in the post of honour in the preface.

One sentence has caught our eye in glancing through the book which needs correction. On p. 459, ethal or cetyl hydrate is said "to be volatile by heat and by oxidation, and yields palmitic acid just as common alcohol yields acetic acid." Beginners would not know, though more advanced students might, that this should read "ethyl is volatile by heat, and yields palmitic acid by oxidation, just as," &c. On page 289, "the manna ash" would prevent the possible misunderstanding that the ash of manna is a small tree; and on page 341, by a clerical error, Hanbury is made to refer the fig to N.O. Artocarpæe, when his real expression is Artocarpacæe.

We have but to add that the type is excellent, that the lines are widely separated, that the paper is stout and agreeably tinted, and the cost of the work 12s. 6d., and we may leave its recommendation to its own merits and the renown of the author and his school.

Morbid Craving for Morphia (Die Morphiumsucht): A Monograph Founded on Personal Observations. By Edward Levinstein, M.D., Medical Director of the Maison de Santé, Schöneberg-Berlin. Translated from the German by Charles Harrer, M.D., L.R.C.P., Lond., Physician to the Eastern Dispensary of the Gorman Hospital in London. London: Smith, Elder & Co. 1878. 8vo. Pp. viii.-131. 8s.

THE original work, dated January, 1877, was intended solely to show the danger of continued subcutaneous injections of morphia, and to point out remedies for the cure of its effects and prophylactics for preventing them. The volume before us is an accurate translation, neither encumbered nor improved by the opinions or experience of the translator. As the book in its English dress is not intended for learners, but is designed to draw the attention of qualified medical men to the actual and possible abuse of an important means of cure, this is undoubtedly the wisest plan, and its readers are indebted to Dr. Harrer for his modesty in retiring behind the scenes after making his bow on the title-page. That he has adopted this course will not endanger the recognition of his merits.

By "morbid craving for morphia" the author means (*vide* p. 3) the uncontrollable desire of a person to use morphia as a stimulant and tonic, and the diseased state of the system caused by its injudicious use. It is generally caused by hypodermic injections of the drug, given by the medical attendant during illness to relieve pain, and continued by the patients themselves after the actual need of it has disappeared, for the sake of the mental excitement it produces. The danger involved was not generally suspected during the first years of the use of the new means of administration, but the existence of the Maison de Santé under the medical direction of the author, which is devoted to the cure of sufferers from this craving, shows how large its evil effects must already be. The sufferers feel quite well for a certain time whilst using the narcotic, but before long evident symptoms of disease appear. The patients become emaciated, the complexion ashy or dark red, the eyes lack lustre, and vision is often deranged; thirst, nausea, and loss of appetite, constipation, and the secretion of albumen by the kidneys, impotence, a form of delirium tremens different from that caused by alcoholic excesses, intermittent fever, and great derangement of the moral character, are among the morbid appearances produced. In cases where the alkaloid has been administered in poisonous doses the author has frequently observed the presence of large quantities of sugar in the urine, and he suggests that in the absence of direct proof of the presence of morphia in the body or in this secretion the absence of sugar would indicate that it was not the cause of death. Morphia is found after administration to pass rapidly into the urine, and in cases of morbid craving its presence can usually be detected six or eight days after the last dose was taken. The test proposed for it is that of Professor Dragendorff, and in its description we find an important misprint or mistranslation. We read (p. 124) "100 respectively 50 cc. of urino are evaporated on the water bath to a dry stato." The meaning probably is, that 100 cc. are evaporated to dryness on the water bath, 50 cc. at a time. The process consists essentially in dissolving the residue in water and shaking it with mylic alcohol, to remove the urea, &c.; after adding ammonia it is again shaken with the alcohol, which only then dissolves the alkaloid. The latter can be recognised by the most reliable qualitative tests.

For the cure of the morbid craving the author suggests, and supports by numerous cases of his own, that the patient should be at once placed under proper control and entirely deprived of the use of the drug. He gives full directions how the various phenomena which arise should be dealt with, and of the best means of alleviating the intense sufferings which the process of cure involves. This part of the work especially is outside our readers' special interest, and this notice itself would not be in place in these pages were it not the duty of every intelligent pharmacist to know at least something of all the relations of the remedies he handles. Criticism, properly so called, of a work essentially medical would come with little grace from us, but we can cordially recommend "Levinstein's Morbid Craving for Morphia, translated by Harrer" to the attention of all who do not confine their interest in drugs to the mere buying and selling.

Holmes' Botanical Note-book: A Botanical Note-book or Practical Guide to a Knowledge of Botany. By E. M. Holmes, F.L.S., Curator of the Museum of the Pharmaceutical Society of Great Britain, late Lecturer on Botany at Westminster Hospital. London: Thomas Christy & Co., 155 Fenchurch Street, 1878.

UNLIKE Mrs. Glass' celebrated directions for dressing hares, this little work begins, continues, and ends with the demand—"First get a flower." Although never enunciated in so many words, this is the spirit of every page of the book. Having got the flower, and starting with a most excellent ignorance of it, the student should turn to the two plates which form the double frontispiece. On one the garden geranium is depicted, on the other the common daisy. There he will find them dissected in printers' ink, and labelled like the school-boy's cow. Overleaf he finds the "explanation of the plates," where such "outlandish" words as stipule, perianth, and thalamus, and the other more important names of plant organs are explained. From this he should easily learn to name the different parts of a specimen, as they occur. On page 11 come directions for examining plants, and after them directions for describing them in the schedules. Of these there are 60. At the top of each is a space for name of plant, place of growth, and date. Beneath this, root, stem, leaves, stipules, &c., are arranged in a heading in the order in which they should be described. In a line with each are the points to be noticed in their description, thus: "STEM.—Position, character, consistence, direction, shape, and surface," and so on. Beneath comes a lined space; on each line is the name of one organ—say the root. The student sees from the heading that he has to put down its character and shape. What is he to do? He knows nothing about them. On turning to the glossary, page 15, he finds the first section headed Root, and divided into two subsections, character and shape. Under each of these sub-headings he finds all the terms in common use for describing them, with their explanations, and by comparing his specimen with these descriptions, he will easily be able to select the right term. So he may go on through all the organs to the fruit and seed. Having filled the dozen blank lines in the schedule, he sees beneath it some cabalistic word, class, sub-class, natural order, and remarks. To discover their meaning he returns to p. 38, where he finds "directions for using the charts." Of these there are two—one containing the skeletonised diagnoses of the orders most important from a botanical and medical point of view, the other containing the remaining British natural orders. The directions given will enable a beginner almost at once to identify the class, sub-class, and order of his plant, and appendices are given to each chart, in which the more frequently divergent plants are mentioned under each order.

This book is of no use without living plants. Anyone who hopes to learn anything from it alone will be miserably disappointed. On the other hand, he who will use it carefully in the way we have indicated will find it of the greatest possible use. To enable learners to secure specimens when they are in season, a floral calendar is given, which mentions under each natural order the months in which its more important plants are in flower; and for use in medical schools a list is given, classified under May, June, and July, of the orders which may be advantageously studied during the month.

Even within the last five years the improvement which has been made in botanical text-books is most striking. For convenience to the learner, this last competitor for his interest will not yield the ground to any. To those who have not the leisurely perseverance to follow larger and more detailed guides, such as Bentham or Hooker, and who wish to gain in the shortest practicable time a knowledge of the main characteristics of the British flora, this note-book will be very valuable, and will smooth the path of every teacher and every learner in a study which is always liable to become encumbered with details. Young men who are beginning to think of preparing for the Minor will do well to get the book at once and use it during the coming summer. If they faithfully fill up the 60 schedules, they will find themselves well equipped for a winter's course of structural and physiological botany. As regards systematic knowledge of plants, this book covers the ground included in most of the medical and pharmaceutical examinations, in the first B.Sc. Lond. and in the elementary and advanced Science and Art examinations in botany.

Sniveley's Manufacture of Perfumes: A Treatise on the Manufacture of Perfumes and Kindred Toilet Articles. By John H. Sniveley, Phr. D., Professor of Analytical Chemistry in the Tennessee College of Pharmacy, author of "Tables for Qualitative Chemical Analysis," &c. Nashville: Charles W. Smith, 158 Church Street. London: Trübner & Co., Ludgate Hill. 1877. Pp. viii.-248.

is book, although "especially addressed to the apothecary" (introduction, p. 3), is yet intended to be a "guide book complete enough to lead the student from the most elementary facts to a full understanding of the subject" (preface). The apothecary, from his acquaintance with many of the substances used in the perfumer's laboratory and familiarity with processes common both to his own and the perfumer's art, is peculiarly fitted to undertake the study and development of the science of odours" (introduction, p. 3). Still, "the work includes accounts of all processes in which the perfumer is indirectly interested, as well as those which are ordinarily employed in the laboratory. Special care has been taken to describe the materials used in the manufacture of perfumes. The list of such materials has been made as complete as possible, nothing of any consequence being omitted except some simple colouring matters and a few other drugs of such common occurrence that a notice of them would be superfluous."

The introduction, initial processes, nomenclature, and the materials used in perfumery occupy the first 95 pages. From page 224 we find formulæ for handkerchief perfumes, toilet waters, vinegars, and soaps, ammoniated perfumes, sachets, stils, cosmetics, dentifrices, washes, dressings, tonics, and essences for the hair, and depilatories, with notes on the manufacture and characteristics of each class. The last 24 pages contain "hints and directions" on bottling, labelling, and selling perfumes, and on the classes likely to be most popular in different districts.

In the preface "the author acknowledges his indebtedness to Wood & Bache's 'United States Dispensatory,' Cooley's 'Toilet and Cosmetic Arts,' and, more especially, to Piesse's 'Art of Perfumery.' He has drawn upon all these sources for information, and has also taken the liberty to use the latter work, to the extent, as a model after which to arrange the present treatise." We were curious to see how far the work could lay claim to originality. We therefore compared it with those here named, and found that of the three M. Piesse had been the most largely drawn upon. We selected quite indiscriminately an article on ambergris in the first section of the book, and one on dentifrices in the second. We print in parallel columns the first two sentences of the new work with those in Piesse's 'Art of Perfumery,' which correspond to them:—

Sniveley.

The origin of ambergris was for many years an unfathomable mystery. It was floating on the sea it gave no clue to the place or manner of its formation, and from a supposed analogy to amber, took the name it still bears—grey amber.

Piesse.

We are quite within limit in stating that many volumes concerning the origin of ambergris have been written, but the question respecting it is still at issue.

The substance is found in the sea, floating. Some authors consider it analogous to amber; hence its name amber-gris (grey), grey amber.

and so on. It is true that in all places the resemblance of ambergris is not so marked. In the article just quoted we have a clue to the origin of the drug not found in either of the works named. "It is rather a sort of calculus, and is deposited in regular layers. It is said that by delicate manipulation, these layers may be separated like plates of mica." We are further told what points should be regarded in purchasing samples, and given this form for

AMBERGRIS TINCTURE.

Take of ambergris one troy drachm; powdered orris root, two troy drachms; distilled alcohol, one pint.

The addition of orris root is not supported by either of his authorities. Had we trusted to this single passage there was an equal chance that we had not gained a fair idea of the author's originality. Opening the book again at "Dentifrices," we went through the chapter.

Sniveley.

Probably the substance best adapted for a mechanical dentifrice is prepared chalk, and the most objectionable of those usually employed is pumice stone.

Cooley.

Pumice stone is highly objectionable in a tooth powder intended for daily use.

The formulæ are usually somewhat modified, but out of 17

given for dentifrices only one, or at most two, are not found in Cooley and Piesse. Whether the modifications are improvements or not is entirely a matter of fancy. For the sake of illustration we give one on which our eye has just fallen, and which may or may not be the most strikingly original:—

Sniveley.

Castilian tooth cream.

White oil soap.. .. 3 troy ozs.

Prepared chalk.. .. 1 "

Honey sufficient.

Cinnamon, otto .. 10 minims.

Rose geranium, otto.. 10 "

Cooley.

Castilian tooth cream.

Castile soap tooth paste.

Spanish dentifrice.

Castile soap, air-dried, in fine powder 2 ozs.

Cuttlefish bone 2 "

Narbonne honey .. 4 or 5 "

Aromatics or perfume at will, with or without the addition of a little rectified spirit.

Having compared the two chapters, and reduced our chances of error to one in four, we thought we need trouble ourselves no further. Whatever merits the book claims, that of originality is not the most prominent. It will probably be as useful as either of the sources from which it is drawn, and as both are now difficult to obtain, it may perhaps take their place in the struggle for existence which is already commencing among works on perfumes.

Family Practice; or, Simple Directions in Homœopathic Domestic Medicine. London: Gould & Son. Bath: E. Cupper.

This is a convenient little volume describing the most ordinary "family" diseases, and recommending a course of medical and general treatment. It is only necessary to say in reference to the matter of the book that it is well arranged, and seems to have been very carefully compiled. Of course it is specially intended for homœopathic believers.

SINCE May 2 *Nature* has been published in an enlarged form and the price has been advanced from 4d. to 6d. per week.

SINCE MAY 1 the *City Press* has been issued twice a-week (Wednesdays and Saturdays), instead of weekly as hitherto. The paper is under the same management with regard to both the editorial and the publishing departments.

SYNONYMS.—One of our American *confrères* gives us the following, or perhaps we should more correctly say, we take it from him:—M. Raoul Pictet is getting very ill-treated by some American periodicals. The *Manufacturer and Builder*, in its March number, designates him "M. Raval Pietch," and the *Chicago Medical Journal* for the same month dubs him "M. Raoul Pisset." So now we have "three of him," just as in the case of our genial friend "Olivier, Mandell, Halmes." M. Cailletet, whose name is associated with M. Pictet's in the conquest of the gases, has been luckier. We see his name given as "Caillettet," "Caillettet," and the like, but it undergoes no radical change like that of his Swiss compeer. *Après* of this subject, our readers are probably aware that the moonlets of Mars have received the Homeric names of Deimos and Phobos, or, as they may be spelled, Deimus and Phobus. They were spelled, in the *Boston Globe*, "Donnus" and "Shobus," which was more Hibernian than Homeric.

LAVOISIER THE SECOND.—The following advertisement is appearing in the columns of our contemporary, the *Chemical News*:—"The long-sought-for Governing Principles of Dr. Dalton's Doctrine of Definito, Reciprocal, and Multiple Proportions have been discovered; including a complete elucidation of the Governing Principles of the Substitution, Hydrogen-replacement, and Compound Radical Theories—Inorganic and Organic—of Modern Chemistry. These discoveries are the result of eighteen years of Investigation and Research, and, entire success having been achieved, they are now brought forward complete in every sense of the word, and will prove an invaluable aid to the Student, the Teacher, the Lecturer, and the Practical Chemist, in every branch of the Science. Due notice of publication will be advertised.—ERBERTMA." The advertisement has puzzled us. Either there is some truth in it, or it is an expensive and very funny joke. If it is true, what a millennial prospect is open before the eyes of the teachers and learners of chemistry! We look with interest for the "due notice of publication" promised, and suppose it must be something most extraordinary, seeing that the advertisement above is not considered sufficient. But what is "Erbertma"?

A small volume, with homœopathic tendencies, has reached us this month. It treats on clorgynian's sore throat, and is from the pen of Dr. E. B. Shuldham. This little treatise is quite an interesting literary monograph on a minor but irritating complaint. According to him the affection, with its consequent huskiness and failure of voice, is due rather to mismanagement than over-exertion of the voice, and he therefore devotes the greater part of his essay to a consideration of the arts which public speakers, singers, and actors should study. Dr. Shuldham properly comments on the neglect of the art of elocution in the education provided by our schools and universities. Until more attention is paid to this study the majority of even our cultivated men will echo Tennyson's words, "I would that my tongue could utter the thoughts that arise within me." Of course Dr. Shuldham discusses the medical treatment of the complaint in question, but his most powerful medicine would be a glycerine jujube. Cayenne, alum, tannin, and such like drugs and chemicals he disapproves. Suppers, tobacco, and shirt-collars are also among the accessories considered, and the book is well studded with anecdotes of elocutionary artists. Messrs. Gould & Sons are the publishers.

MESSRS. EVANS, SONS & CO., of Liverpool, have published a pamphlet on "The Island of Montserrat," illustrated with some four or five brilliantly-coloured lithographs. The primary object of the publication is no doubt to advertise the Montserrat Lime Juice, but the particulars given are not the less interesting for that reason. The Montserrat Company, founded more than 20 years ago, now occupies some 600 acres of ground, on which are planted 120,000 lime fruit trees. Especial care is taken by this company to provide a lime juice of perfect purity, and "no more beautiful sight can be seen," we are told, "than these (lime) orchards when the trees are laden with their bright fruit, and at the same time (surely this is a little rhetorical) the air is pervaded by the luscious fragrance of the blossoms. The Montserrat negroes are a happy, independent, and bright race. A few of their amusing characteristics are mentioned. "A fellow who was called to account for chewing cane at the mill said, 'Thou shall not muzzle de ox.' Another called to hold a horse grumbled at the length of time he was kept, and said he should have to give an account of the unprofitable moments." The reader of this pamphlet must wish every success to the Messrs. Sturge's enterprise, partly for the reason that it gives us a supply of a valuable product in perfect purity, and partly that it indicates the wisest means of offering assistance to a race which we must needs regard with sympathy and interest.

NEW BOOKS.]

- Commercial Information, Handy Dictionary of. By E. T. Blakely. 12mo., pp. 486. Simpkin 4/6
- Infantile Paralysis. By J. Althaus. Post 8vo. Longmans 2/
- London Dictionary of 1677, the Oldest List of the Merchants and Bankers of London. Reprinted from the exceedingly rare original, with an Introduction pointing out some of the most eminent Merchants of the Period. 12mo., boards. Chatto & Windus 2/6
- Pine Plantations on the Sand Wastes of France. By J. C. Brown. 8vo. (Edinburgh, Oliver & Boyd), pp. 176. Simpkin 7/6
- Law of Trade Marks and their Registration, the Trade Marks Acts, 1875-77; Merchandise Marks Act, 1862; U.S. Statutes, 1870; and Treaty with the United States, 1877; Rules and Instructions, February 1878, &c. By L. B. Sebastian. 8vo., pp. 376. Stevens 11/
- Whole Meal Bread Question in a Dietetic and Economic Point of View. With a Sketch of Bakers and Baking, Past and Present. 12mo., pp. 110, sewed. Hill /6

GERMAN WORKS.

- Excursionsflora für Süddeutschland von D. Mor. Seubert. Verlag von Ulmer in Stuttgart.
- Das Bier, seine Verfälschungen und die Mittel, solche nachzuweisen von R. Sürlein. Verlag von Magron in Bern.
- Samenfüllung und Samenschutz. Die wichtigsten Verfälschungen und Verunreinigungen der landwirthschaftlichen Samen, deren Erkennung und Verhütung von Stebler. Verlag von Magron in Bern.
- Die allgemeinen chemischen Formeln, ihre Entwicklung und Anwendung zur Ableitung chemischer Verbindungen von C. Willgerodt. Verlag von Winter in Heidelberg.



LUDDINGTON'S DRIFFIELD OILS.

AN action was tried last month in the Chancery Court before Mr. Justice Fry, in which the plaintiffs were Messrs. Tomlinson & Hayward, and Mr. Thomas Luddington, of Lincoln, and the defendants were Messrs. Lofthouse & Saltmer, wholesale chemists, of Hull. The action was brought to restrain the defendants from manufacturing and selling a specific known as "Luddington's Driffield Oils," or "Luddington's celebrated Horse and Cattle Medicine," by that designation or by any title or name differing only colourably therefrom, so as to lead purchasers to suppose that they were buying the preparation manufactured by the plaintiffs or their predecessors in business, and from representing that the defendants were the successors in business of James Luddington, deceased, or were the sole proprietors of the specific. It appeared that the preparation, which was stated to be of great value in various diseases of horses, sheep, and cattle, was originally invented by one William Luddington, who lived at Driffield, and was sold by him as "Luddington's Driffield Oils." Some time before his death he went to Hull to live with his son James, to whom he communicated the secret of the manufacture. After his father's death, James, being then the sole proprietor, found the business more than he could manage, and, accordingly, in 1850 he imparted the secret to his brother John, who lived at Market Rasen, and they arranged that they should divide England between them, James taking the north of the Humber, and John the south. John Luddington died in 1870, and by virtue of the provisions of his will, and an arrangement made with the widow and the executors, his business devolved upon his son Thomas, one of the plaintiffs. James Luddington died in 1875, and by his will gave his residuary estate, which included the cattle medicine business, to his trustees and executors, Jonathan Duncan and James Simpson, upon trust as to one moiety for the daughter, and as to the other, for the benefit of the son, Jno. William Luddington, or his wife and children, in the absolute discretion of the trustees; but in such a way that the son should have no power to dispose of any part of it. After James Luddington's death, his executors continued the business and supplied the oils to his customers, and amongst others to the defendants. Jno. Wm. Luddington, pretended to sell to Messrs. Lofthouse & Saltmer, for a small sum of money, the business of his father, James Luddington, to which he said he was entitled as his father's son. The defendants set up this sale, and contended that by virtue of it they were entitled to manufacture and sell the oils, representing themselves to be the successors of James Luddington, and they further alleged that the sale was made with the privity of Mr. Duncan, one of the executors. This, however, Mr. Duncan emphatically denied. On the 3rd February, 1877, James Luddington's executors sold his business to the plaintiff, Thomas Luddington, and by an arrangement between him and Messrs. Tomlinson & Hayward, they are now the proprietors of the businesses of James and John Luddington, the two original proprietors, and they now applied for an injunction against the defendants.

Mr. Justice Fry said, that upon the evidence before him, he was satisfied that Mr. Duncan, the executor, had not concurred in the sale by John William Luddington, and that, even if he had, it would not be binding, because it was necessary that both trustees should concur in any bargain for the sale of the property. After an exhaustive review of the whole case, he said that he should grant an injunction in the terms asked for by the plaintiffs, which were as follows:—That the defendants, their servants, and agents, be restrained by the order and injunction of the Court from selling or exposing for sale any specific or other medicinal preparation, under the designation of, or purporting to be, "Luddington's Driffield Oils," or "Luddington's celebrated Horse and Cattle Medicine," or otherwise described by any title or name differing only

ourably therefrom, so as to hold out that the preparation so d, or offered for sale, was or is manufactured by the plaintiffs any of their predecessors in business, or that the defendants carrying on the manufacture or sale thereof, or of any dicinal or other preparation in continuation of or in succession to the business formerly carried on by James Luddington, ceased, and from representing that they are the sole or exclusive owners or proprietors of any such preparation. His Lordship also ordered the defendants to account for and pay over to the plaintiffs all profits made by them by the sale of the oils since June, 1876, and to pay the costs of the action.

POISONOUS SHEEP DIP.

In January we reported the case of *Goddard v. Thompson and Alton*, which was tried before the Court of Queen's Bench. The plaintiff was a farmer at Iwer, in Buckinghamshire, and the defendants are chemists and druggists at Maidenhead. The defendants are the proprietors of a specific compound of arsenic, sulphur, and soap, which, diluted with water, is administered to them as a cure for scab in sheep, and the plaintiff engaged him last year to dip a flock of 200 sheep, which operation was performed by one of their own men. Thirty-four animals died under the operation, as alleged on the part of the plaintiff, because the wash was made 18 times stronger than it should have been; while for the defendants it was contended that the sheep died under the process in consequence of their weak and unhealthy condition. The case was first tried before Mr. Justice Manisty at the Guildhall, when the jury found for the defendants, and the Queen's Bench Division, on being moved to consider the verdict on the grounds that it was against evidence and misdirection, directed it should stand. This decision was appealed from, and on May 6 it came before the Court of Appeal, Lords Justices Brett, Cotton, and Thesiger being on the Bench.

Mr. Bompas, Q.C., Mr. Currie, and Mr. A. C. White were counsel for the plaintiff; Mr. Digby Seymour, Q.C., and Mr. B. W. were for the defendants.

Their Lordships affirmed the judgment of the Court below, and dismissed the appeal with costs.

AERATED WATER PROSECUTIONS.

APRIL 9TH John Ellis, fruiterer, Westgate, was summoned before the Huddersfield Borough Police Court on the charge of selling to E. G. Kirk, sanitary inspector, on March 13, four bottles of potash water not composed of the ingredients demanded by the purchaser, and also for selling soda water which was not of the nature and quality demanded by the purchaser. As he had bought the goods of the South Yorkshire Aerated Water Company, the defendant announced his intention of suing them for any damages which might accrue.

George Brighthouse and others, trading in Fitzwilliam Street, Huddersfield, as the South Yorkshire Aerated Water Company, were summoned at the same time for selling on March 4, to E. G. Kirk, six bottles of soda water not of the nature, substance, and quality demanded by the purchaser, and the same bottles not composed of the ingredients demanded by the purchaser.

Mr. George Jarman, analyst, swore that he had analysed the samples, that neither contained any bicarbonate of soda or potash, and that the water purchased from Ellis contained 42 grains of metallic copper, and the Company's 23 grains per gallon, which would be injurious to the health of a person in the habit of drinking it frequently. In cross-examination he said that 23 grains to the gallon would be about a 300th part of a grain to half a pint. The copper might be the result of an accident to the apparatus. Aerated water containing less than a grain of bicarbonate of soda to the bottle he would not admit to be soda water.

R. H. Inman, Huddersfield, aerated water manufacturer, said that the soda water manufactured by his firm always contained five grains soda bicarbonate a bottle, and that this could vary. Some manufacturers put no soda in it.

Mr. S. Learoyd, for the defence, said that there was no standard for soda water; that before a charge can be laid of selling articles not composed of the ingredients demanded by the purchaser, the purchaser must ask for the ingredients; that asking for soda water was not asking for soda; and, lastly, that a person affected by an accident (as in this case, the machinery

getting out of order) was not responsible for the accident. The case was adjourned till April 13.

On that date Mr. Mills, the magistrates' clerk, said that the evidence of the analyst had proved that there was no prejudice in the case, so that the charge of selling an article of food not of the nature, quality, and substance demanded must be given up. In the second charge, that of selling a compounded article not composed of the ingredients demanded, the magistrates would have to decide whether the public expected to get soda water when they asked for it. The fact that it was generally known to the trade that soda water contained no soda did not relieve the sellers of their responsibility to the public, and, unless it could be proved to be so generally known to the latter that deception could not arise, there would still be an offence under the Act.

After a long discussion on the point raised, *i.e.* whether the public expected to get soda water when they asked for it, during which no fresh evidence was called, the case was again adjourned. It was agreed that a sample of each kind of water in the stock of the South Yorkshire Aerated Water Company should be submitted to the analyst, and if it contained copper it should not be sold.

On April 23 the defendants stated that they should call no fresh evidence, and would submit to the penalty to be inflicted by the Bench. The South Yorkshire Company and Charles Fisker, aerated water manufacturers, Huddersfield, were then both fined 2*l.* and costs; John Ellis, Westgate, fruiterer, and Benjamin Crampton, of the Plough Inn, Westgate, were mulcted in 10*s.* and costs.

THE SALE OF DRUGS BY SUPPLY ASSOCIATIONS.

At the Bloomsbury County Court on May 10, before Mr. G. Lake Russell, judge, an action was brought by the Pharmaceutical Society against Mr. William Mc'Ness, of the London and Provincial Supply Association, 119 Tottenham Court Road, to recover penalties for selling to customers certain poisons, in contravention of the Pharmacy Act, 31 and 32 Vic., chap. 121. The penalty sued for specially was under the 15th section of the Act, for permitting an assistant to dispense medicines contrary to its provisions. A clerk to the plaintiffs' solicitors said that on February 4 last he went to the defendant's establishment, and purchased a small quantity of oxalic acid and some red precipitate. He again visited the defendant's premises for a similar purpose, and was again supplied. On cross-examination the witness said he found that the assistant was a registered chemist and druggist.

J. Alexander, another clerk to the plaintiffs' solicitor, said that on March 19 he presented a prescription at the defendant's establishment, and asked Mr. Longmore, the dispenser, how much it would cost. Mr. Longmore said eightpence. He called again and received the medicine. On March 20 he was served with a pennyworth of white precipitate, which he took to Professor Attfield, of the Pharmaceutical Society.

Dr. Attfield deposed that he received the packets of drugs from the former witnesses. They were poisons. The prescriptions contained perchloride of mercury, which is a poison. On cross-examination the witness said the prices charged were the same as charged at ordinary chemists' shops.

Henry E. Longmore said he was a registered chemist and druggist, employed at the defendant's, and was part proprietor of the establishment. He possessed five shares, at 10*l.* per share, on which 2*l.* 10*s.* each was paid. The other partners were co-shareholders. Mr. Mc'Ness engaged him and he had a salary of 2*l.* 6*s.* 2*d.* a week. The prices charged were 25, 30, and sometimes cent. per cent. less than the usual shop prices.

A. Polloy deposed that he was manager to the defendant. He produced the register, and showed that Mr. Longmore became a shareholder on February 19. The defendant held 564 shares, each credited at 10*l.* paid, and there were only nine others holding 36 shares, each credited with 2*l.* 10*s.* paid.

Mr. Saunders, Recorder of Bath, who appeared for the defence, urged that the action could not possibly have been brought on public grounds, for if so, it would be necessary to show the public had been aggrieved. It was shown that as much as 100 per cent. advantage had been given the public in some cases, so that the public should have been pleased with the advantage. The 15th section of the Act had not been violated, because duly registered members of the Pharmaceutical Society had been employed. After some further argument his Honour reserved judgment.

BANKRUPTCIES AND LIQUIDATIONS.

CLOSE & LEGGE, Wholesale and Export Druggists, 28 Jewry Street, and 91 Leadenhall Street.

THE debtors filed their petition for liquidation on April 26, and Mr. H. B. Knight subsequently applied to the Court for the appointment of Mr. H. J. Leslie, accountant, 1 Frederick's Place, Old Jewry, as receiver and manager of the estate. In support of the application Mr. Close made an affidavit, in which he stated that the liabilities amounted to about 10,000*l.*, of which upwards of 5,000*l.* was due upon bills of exchange in the hands of persons who were abroad. The firm had lately received orders for goods to the amount of 300*l.* and upwards, and it was necessary that the same should be executed. Mr. Registrar Brongham appointed Mr. Leslie as receiver and manager, his nomination being approved by the following creditors:—Chas. Jarrett, Baiss Bros. & Co., J. P. Rickmann, Pollatt & Co., and E. Bentley. The following firms are also creditors:—Baiss Bros. & Co., Jewry Street; E. Bentley, 9 Windmill Street; Barnett, Son & Foster, Hoxton; J. C. Eno, Newcastle-upon-Tyne; Thomas Powell, Blackfriars Road; H. Bell, Guildford Street, Lambeth; J. Davenport, Great Russell Street, Bloomsbury; Cannington, Bennett & Co., Manchester; Calvert & Co., Manchester; Pellatt & Co., St. Bride Street. In the separate estate of Mr. Close: F. Foster, 23 Foston Street, Hoxton; S. Stoakor & Sons, Camomile Street; Dr. Lashmer, Wellesley Road, Croydon; —De Chastelaine, Merton. Separate creditors of Mr. Legg:—G. Fage, Portland Road, South Norwood; E. Bentley, Hill Street, Finsbury; J. Berenberg, 2 Suffolk Lane, E.C.

LOMAS BROTHERS, Chemical and General Merchants, 4 Cullum Street.

THE debtors, John and William Lomas, trading in copartnership as above under the firm of Lomas Brothers, filed their petition for liquidation on the 1st inst., returning their liabilities at about 19,300*l.*, the following being entered as joint creditors:—

	£	s.	d.
William Whentley & Co., Water Street, Liverpool ..	621	14	0
Crichton, Cail & Co., Quayside, Newcastle ..	619	0	0
Levermore Brothers, 13 Cullum Street ..	238	9	9
W. B. Caw & Co., Tower Buildings, Liverpool ..	209	9	7
Phillips & Cox, 17 Philpot Lane ..	204	2	1
Lneas Brothers, Dunston, Gateshead-on-Tyne ..	135	0	0
E. W. Carling & Co., 4 Cullum Street ..	126	19	4
Bessler, Waechter & Co., Newcastle ..	61	4	11
T. Newton, 17 Gracechurch Street ..	37	10	0
Eppenheim & Co., 59 Mark Lane ..	32	11	10
R. Thomas & Co., 40 Gracechurch Street ..	29	0	0
Hyslop & Symonds, 9 Mineing Lane ..	28	11	9
F. S. Bayley & Co., King Street, Manchester ..	27	9	10
The Lancashire and Yorkshire Railway Company ..	16	9	10
The General Steam Navigation Company ..	16	9	2
W. H. Cottell, Sharp's Wharf, Wapping ..	15	16	1

Separate Creditors of Mr. John Lomas.

	£	s.	d.
G. Lomas, Honor Oak Park, Forest Hill ..	3,500	0	0
Hodgkin, Barnett & Co., Newcastle ..	4,500	0	0
C. P. Allen & Son, India Buildings, Manchester ..	600	0	0
T. Gabriel, jun., Commercial Road, Lambeth ..	500	0	0
Knight & Son, 17 Philpot Lane ..	370	5	0
W. Griffiths, 6 Crosby Square ..	116	0	0

The case came before the Court on the 1st inst., Mr. Field (Nash & Field), stating that he was instructed to apply for the appointment of a receiver and manager of the estate, and for an interim order restraining further proceedings in an action. In support of the application the debtors made an affidavit, in which they stated that their joint and separate debts and liabilities amounted to 19,300*l.*, or thereabouts, and their joint and separate assets were, they believed, of the value of 20,800*l.*, subject to contingencies. The joint assets consisted of book-debts amounting to about 600*l.*, and there were also consignments of chemicals consisting of bleaching powder and soda, and contracts, of the value of 1,000*l.* or thereabouts. The stock was estimated to be worth about 100*l.*, furniture, 100*l.*; and there was also property at Northfleet. The separate assets were composed of shares in various trading companies, of the estimated value of 19,000*l.*. Messrs. Crichton, Cail & Company, chemical merchants, Newcastle, had signed judgment in an action for the recovery of 619*l.*, and it was necessary that further proceedings should be restrained. There were several contracts on hand which required immediate attention, and would prove of value

to the estate if carried through; and the appointment of a receiver and manager was therefore desirable. Mr. Browne, accountant, 25 Old Jewry, was nominated to the office, the nomination being supported by Mr. Thomas Phillips (Phillips & Son), 17 Philpot Lane. Mr. Registrar Murray appointed Mr. Browne to the office of receiver, but required the concurrence of other creditors before appointing him manager. He also granted an interim injunction against Messrs. Crichton, Cail & Co.

The matter was again before the Court on the 8th inst., and, upon the application of Mr. Linklater (instructed by Messrs. Nash & Field), Mr. Registrar Murray, in the absence of opposition, continued the interim injunction previously granted. Mr. Linklater then renewed the application for the appointment of Mr. Brown, the receiver, as manager, stating that the concurrence of the principal creditors had been obtained. There were several contracts on hand, and it was essential that they should be carried through. His Honour made the order. Mr. Linklater said that he had also to ask for an injunction restraining Messrs. Savary, Young & Co. from proceeding against the separate estate of Mr. John Lomas. The application would have been made before, but the debtor had omitted to give the solicitors the necessary instructions. The claim was disputed, and had been referred to arbitration, but the debtor, having filed his petition, was not in a position to appear before the arbitrator. The Registrar granted an interim injunction.

GEORGE TAY, Drysalter, &c., Birmingham.

A MEETING of creditors in the matter of proceedings instituted by this debtor, who carried on the business of drysalter and grocer, was held at the offices of Mr. Edwin Jaques, solicitor, Cherry Street, on April 18. Mr. H. Clarke was nominated chairman and Mr. Jaques represented the debtor. The following is the statement of accounts submitted to the meeting:—Liabilities: Unsecured creditors, 482*l.* 2*s.* 2*d.*. Assets: Stock-in-Trade, 52*l.*; book debts, 60*l.* 10*s.* 9*d.*, estimated to produce 49*l.* 11*s.*; fixtures, fittings, &c., 24*l.* 8*s.* 2*d.*, estimated to produce 11*l.* 19*s.*; horse, trap, and harness, 17*l.* 16*s.*; total (less 24*l.* 5*s.* 11*d.*, creditors to be paid in full), 130*l.* 18*s.* 3*d.*. Mr. Jaques offered a composition of 3*s.* in the pound, which was confirmed, Mr. Starkey to receive and distribute. At the second meeting on the 2nd inst. the resolutions were confirmed. The following are the principal creditors:—

	£	s.	d.
Browning, J. & H., & Co., Smithfield ..	23	16	8
Brookes, J., & Co., Birmingham ..	12	4	6
Brown, Richard, Birmingham ..	11	3	8
Clarke, H., Birmingham ..	42	15	11
Cheshire, T. P., Birmingham ..	17	19	10
Castle, Henry, Hoekley Heath ..	21	5	3
Johnson, John, Birmingham ..	10	15	3
Lampard & Foster, Eastcheap ..	20	18	5
Mason, Maria, Bricknell, Salop ..	42	0	0
Rowbottom, John, Birmingham ..	35	0	0
Radcliffe, R. & F., Birmingham ..	23	11	2
Stanley & Co., Birmingham ..	81	18	5
Tay, Thomas, Wombourne ..	20	0	0

And 34 creditors under 10*l.*

FRANK WILTON, Drug and General Merchant, 66 Mark Lane.

THE first meeting of the creditors in the bankruptcy of Frank Wilton, of 66 Mark Lane, in the City of London, trading under the stylo or firm of "Frank Wilton & Company," drug and general merchant and commission agent, was held at his office, 66 Mark Lane, on Friday, April 26. Mr. Vansandau, of Vansandau, Cumming & Sons, 13 & 14 King Street, Cheapside, was in the chair. There was a large attendance of creditors, and the room was crowded.

We reported last month the appointment of Mr. Richard Rubbidge, accountant, 17, King Street, Cheapside, as receiver and manager, and gave an incomplete and (unfortunately) rather inaccurate list of creditors. At the meeting in question Mr. Rubbidge read the subjoined list:—

Unsecured Creditors.

	£	s.	d.
Baiss, Brothers & Co., Jewry Street, Aldgate ..	59	11	10
Bonde, A., 115, Marsclles ..	125	2	6
Burgoyne, Burbridges, Cyriax & Farries, 16 Coleman Street ..	18	14	2
Charles & Fox, 2 Mincing Lane ..	45	1	6
Comling, John & Co., 112 Exchange Buildings, West Liverpool ..	602	8	2
Clifford, Christopherson, & Co., 17 Great Tower Street ..	388	19	4

	£	s.	d.
Deutsche Bank, Drapers' Gardens, Throgmorton Street	1,122	13	9
Dale & Stubbs, 23 Great St. Helens	471	16	11
Grain, William, 50 Gresham House	12	1	10
Green, Gresham House	400	0	0
Holland, L., Romford Court, Liverpool	95	0	0
Hoffenbach, L., 36 Rue St. Croix de la Bretonnerie, Paris	50	0	0
Huntley & Palmer, Reading	50	9	9
Lauder & Crosbie, Bridge Mills, New North Road	35	12	10
McFarlane & Co., Barge Yard, Bucklersbury	23	3	6
Phillips & Webb, Great St. Helens	77	4	0
Phillips & Graves, St. Dunstons House, E.C.	20	19	3
Smith, T. and H., & Co., 12 Worship Street	292	9	9
Tidd, F. A., & Co., Royal Exchange	38	0	5
Young & Marriott, 9 Mining Lane	15	19	4
8 Creditors under 10l.	20	7	9
	3,865	16	7

Other Liabilities expected to Rank on the Estate.

	£	s.	d.
Shoolbred, James, Nicholas Lane	268	2	0
Merchant and Traders' Discount Company, Newman's Court	243	8	0
Wulff, G. H. & J., Fenchurch Street	496	5	0
Agra Bank, Nicholas Lane	889	16	0
Unknown holders of Waud & Graves Drafts	600	0	0
	2,497	11	0

Liabilities.

	£	s.	d.
Unsecured creditors, as per list	3,865	16	7
	£	s.	d.
Creditors fully secured	2,027	1	11
Less estimated value of securities	2,829	17	3
Surplus to contra	802	13	4
Other liabilities	5,163	15	2
Expected to rank	2,497	11	0
Liabilities on bills discounted	14,956	14	8
Of which it is expected will rank against the estate for dividend	858	3	8
Creditors for rent, rates, taxes, and wages, payable in full	73	9	11
Total debts	7,221	11	3

Assets.

	£	s.	d.
Goods in sundry places, estimated at	911	7	4
	£	s.	d.
Book debts about	1,602	13	1
Estimated to produce	1,239	13	11
Furniture, fixtures, and fittings, at 336 City Road, and at offices, estimated to produce	290	0	0
Surplus from securities in the hands of creditors fully secured, see contra	802	15	4
	3,243	16	7
Less rent, rates, taxes, wages, &c., payable in full	73	9	11
Total assets	3,170	6	8

Mr. Willis, solicitor for the debtor, then read a certificate from Eugene Goddard, Esq., surgeon, 27, Pentonville Road, N., stating that Frank Wilton was then under his professional charge, confined to his bed, and unable to attend the meeting. In answer to subsequent questions Mr. Willis said that the disease certified was inflammation, but he failed to state in answer to further questions what organ the disease had attacked. He also said that he had another medical certificate stating that the debtor was ill of low fever, and he surmised that the latter had developed into the before-mentioned inflammation. The Chairman also said he had been told that Mr. Wilton was suffering from the stone and therefore would be unable to be present. At this point it was moved that the meeting be adjourned until Mr. Wilton should be able to attend. There were many things which did not seem quite satisfactory, and it seemed that they could not proceed further until they had questioned the debtor as to his affairs. It was possible that his answers would prove satisfactory to the creditors. Mr. Willis then interposed, saying that he quite agreed with the motion for adjournment, but he proposed to give an epitomised account of Mr. Frank Wilton's career during the past few months, and after a little desultory conversation the creditors agreed that they could not do better than hear all the information offered to them. Mr. Willis proceeded. In June, 1877, Messrs. Waud & Graves, printers, who had long been on friendly terms with

Wilton, proposed to him that he should leave his situation and should commence the business of drug and general merchant and commission agent, in partnership with themselves, under the title of Frank Wilton & Co., they being willing to advance the necessary capital. Mr. Wilton had been engaged up to this time as clerk to Messrs. Burgoyne, Burbidges & Co. Messrs. Waud & Graves are the firm at present brought into unenviable notoriety in close connection with the frauds on the Agra Bank. On this basis articles of partnership were drawn up, dated June 11, 1877, in which Messrs. Waud & Graves undertook to find the necessary capital, no sum being specified, the profits to be equally divided between Wilton on the one hand and Waud & Graves on the other. The amount of capital the latter actually advanced was something over 3,500l. Wilton, on commencing the business, devoted his attention solely to buying and selling, Mr. Graves having the entire and sole charge of the books. Wilton signed the cheques, but Graves alone had knowledge of the cash transactions and of the financial condition of the firm. Although he did not wish to prejudge matters, he (Mr. Willis) could not help surmising that Messrs. Waud & Graves only entered into this partnership with the view of helping their own business, which may be presumed to have been already in the difficulties which culminated in the suspension of payment which recently excited so much attention. They had often borrowed cheques from Wilton, and had received accommodation from them, and it was on some of these cheques, to meet which they had failed to provide the necessary funds, that the present proceedings were commenced. On March 7 of the present year (1878) Waud & Graves executed a deed releasing Wilton from partnership and transferring to him the assets in the business of Wilton & Co., the present debtor, and indemnifying them from certain liabilities. Frank Wilton at this time was in perfect ignorance of the financial state of the business, and doubtless believed that it was perfectly sound. Although he had signed the cheques he was quite ignorant of the amount of the cash transactions and of the state of the books. He (Mr. Willis) was convinced that the business was already utterly insolvent and rotten, and that Messrs. Waud & Graves had very good reasons for withdrawing from it. Having sucked the orange dry they now threw it away. They had advanced capital to the amount of 3,500l., but they had withdrawn the whole of this, and had further borrowed from Wilton both cash and cheques, some of which had not been covered. The sales of goods up to the termination of the partnership had amounted to 30,000l., while the total of the cheques drawn was over 60,000l. Under these circumstances Waud & Graves would not be able to make any proof against the estate, but they would rather appear as its debtors. The greater part of the debts in the present proceedings were incurred while they were still in the firm, so that they would be incapacitated from proving in competition with their own creditors. While Mr. Wilton retained his health he had given the fullest assistance in his power to the receiver, but his illness had left the latter a most difficult task in preparing the statement of affairs. He might further say that Mr. Wilton had friends and was anxious to do the best he could for his creditors. He, as well as Mr. Willis, had fully hoped to be in the position to make them an offer at the present meeting; but Mr. Wilton's illness had prevented him from seeing his connections, and their anticipations had been disappointed. However, he hoped to be able to fulfil them at a subsequent meeting. In answer to various questions, Mr. Willis said that the business, with the exception of the buying and selling, had been entirely carried on under the superintendence of Waud & Graves, they had the sole management of the books, and the bulk of the debts were incurred while they were still in the firm, so that all the creditors would have a claim against that firm for all liabilities incurred previous to March. It had been said by Wilton and others at the commencement of the proceedings that he had partners in the North of England, and, as a creditor remarked, Mr. Cuthefy, of Liverpool, was mentioned as one. Mr. Willis did not know anything of this matter, and as he had gone fully into the matter on first undertaking it, he felt convinced that there was no ground for the statement. Mr. Atkinson, who had also been mentioned, had given Wilton accommodation on various occasions, but that was the full extent of their connection. Mr. Rabbidge, the receiver, said it seemed that Mr. Graves had been responsible for keeping the accounts, but on taking his appointment he found that there were practically none at all.

He had found a tolerably well kept cash book, but no others. He had, therefore, to make out his statement as best he could, and under very great disadvantages, for the only person whose memory could have been of assistance to him had become ill. For this reason he had been obliged to call his statement an approximate one.

First, as regards the unsecured creditors, all those mentioned in the list had *bona-fide* claims for goods or substantial consideration, and the list had chiefly been made out from statements furnished by the creditors themselves. Some of these were increased by forward contracts, which he had calculated at the prices of the day, as far as Mr. Wilton had been able to furnish them to him, and their full amount was about 150*l*.

Of the creditors fully secured he had not given a detailed list in his statement. Among them was the City Bank, whose claim was 915*l*. They held as securities some acceptances of Atkinson's, one of 575*l*. 13*s*., dated June 13, another 730*l*. 8*s*. 2*d*., dated June 21. They were drawn by Atkinson & Son, and were mutual transactions. The bank, however, held other property of sufficient value to cover their claims without the necessity of recurring to these bills. Atkinson & Son hold securities of Wilton's to a similar amount, but they have not parted with them. The City Bank holds Wilton's securities to the amount of 5*l*. 11*s*. 3*d*., including bills to the amount of 2,616*l*., accepted by Wilton and handed to Atkinson in exchange for the latter's acceptances. Only 2,497*l*. are expected to rank against the estate. Among the liabilities expected to rank against the estate was an item of 600*l*. for bills handed to Waud & Graves: what they have done with it no one knows. Among the liabilities are bills discounted—chiefly Wilton's customers' bills—to the amount of 14,000*l*. Of these 280*l*. are thought to be good, and bills to the value of 570*l*. are assigned to Waud & Graves.

In the assets occur goods in sundry places (chiefly Milan, Leghorn, &c.), not 91*l*. 17*s*. 4*d*. as printed in the statement, but 911*l*. 7*s*. 4*d*. This item is explained by the fact that Wilton's business largely consisted in buying for continental merchants. These, on the arrival of the goods, refused to accept them, so that they had to be sold to the best advantage. In answer to questions Mr. Willis here said the goods had not been bought without orders, but that they had, all of them, been ordered beforehand. To the question why they had been refused although ordered he gave no satisfactory answer. Mr. Rabidge went on. All these goods are in course of sale and are practically already sold. They consist of linseed oil, sandarac, bichromate of potash, shellac, sulphur, and citric acid. (A laugh.) The book debts are almost all foreign. The list of debtors includes Demarecchio, Naples, 201*l*., Martigny, of Bologna, Silicated Paint Company, 117*l*. 5*s*., Pearson, Peterborough, 120*l*. 5*s*., Castarini, Messina, 143*l*. The total is about 1,600*l*., estimated to produce 1,200*l*.

The Banco Neapolitana holds as security cotton oil to the value of 2,150*l*. The City Bank holds galls which cost 1,500*l*., and their claim being 915*l*., 600*l*. out of the 800*l*. estimated surplus from securities in the hands of creditors accrue from this source. The value of the securities when they consist of goods has been taken at the market price of the day.

The Deutsche Bank holds bills on Pellisier which will run off 6,558*l*., but the latter are only intermediates for a firm at Beyrout who supplied the goods. The gentleman who represented this claim of 6,000*l*. stated that he intended to vote in respect of 200*l*. or 300*l*. only.

The Chairman then said that it remained with the creditors to say what course they should pursue. He was quite sure himself that Wilton did know about the cash payments, for on one occasion the latter wrote to him saying, that he hoped he (the Chairman) would wait till the Tuesday for his money instead of demanding it on the Saturday on which it was due. But on pressure Wilton had given him a cheque for the amount.

At this juncture Mr. Willis again said that Wilton only signed the cheques placed before him by Waud & Graves, and knew nothing further about them. The other partners had no power to sign them. In answer to further questions Mr. Willis also said that he had no knowledge of any partners besides Waud & Graves. In the course of the conversation that followed it was remarked that it was not at all generally known previously that Waud & Graves were at any time partners in the business. The statement of affairs was not that of the debtor made in accordance with the act, but was only an approximate statement by the receiver. Mr. Wilton's illness had not only prevented him making the statutory statement,

but had also disappointed his expectation of being able to make some definite offer at this meeting. One of the creditors here remarked that, for all they knew, there might be 10,000*l*. worth of other assets, though it was not very likely. There should be a distinction in the list of creditors between those whose claims accrued while Waud & Graves were still in the business and those which have subsequently arisen.

It was then moved, seconded, and carried that the meeting be adjourned to that day three weeks, at two o'clock, at the Guildhall Coffee House.

One of the creditors then remarked that the debtor was not properly described in the petition, and that he now gave notice of it in case he should wish to object to the whole of these proceedings as not in order.



AN APPEAL.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—In addition to the subscriptions amounting to 25*l*. 12*s*., which in your April issue you kindly announced that I had received on behalf of Mrs. Dixon and her family, I have since received the following:—

	£	s.	d.		£	s.	d.
J. J. Burnett	1	1	0	Battley & Watts	3	3	0
John Williams	1	1	0	B. W. Priest	1	0	0
George Pugh	1	1	0	Patrick Keane	0	10	6
Savory & Moore	2	2	0	Brother, Berwick-on-Tweed	0	2	6
J. Rebbius	2	2	0				

I desire to return my best thanks to all the kind donors, and remain,

Your obedient servant,
ROBERT CHIPPERFIELD.

Southampton, May 10, 1878.

SANDED SPONGES—AN EXPENSIVE FANCY.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

DEAR SIR,—I have perused with attention and thought your article under the above heading in this month's magazine, and without admitting that all therein stated is, strictly speaking, correct, there is sufficient truth to call for remark.

The first paragraph, as to the depth, &c., from which the finest sponge is procured, I pass over, not because I accept the theory there laid down as universal, or even general, but because the special point to which you call attention is the expense.

Our vice-consul at Rhodes is, I know, a shrewd business man, but I think if he had known more of the habits and peculiarities of the English he would have saved himself some trouble by not "endeavouring to acquaint Englishmen with the fact that, for every ten shillings' worth of sponge they buy from Rhodes, they pay, before it reaches England, a shilling more than they need." There is no doubt that for many years there was considerably more sand packed with the sponge than has been of late by many of the largest shippers; but if Senor Biliotti complains of the extra expense of the sand (I may state here that the freight to England is calculated by measurement, so that the cost in that respect is identical whether the case weighs 20 lbs. or 200 lbs.) why does he not mention the cost of bleaching the sponge? Simply, I take it, because he knows from experience that a large proportion of our manufactured fabrics are bleached, and that they could not be sold so readily, here or abroad, if they were not: the same holds good as regards sponge.

If the public in this country and on the continent were guided in their purchase of sponge by simply the question of use, there would be no need for either the sanding or bleaching processes in the manner in which they are now practised; but until that time comes merchants will be induced to procure their goods in the most saleable condition: the retailer would be blind to his

interest were he to adopt a contrary course with regard to or any other article in which he deals.

While we rely upon the eye and hand as judges, we shall find that the bleaching will please the former, and a little sand in the sponge ingratiate the latter. Let any of your numerous readers pose the question for themselves by taking two pieces of sponge of equal value, in size, appearance, &c.; then wash the sand completely out of one piece and dry it; then place it beside the other piece, which retains a small portion of sand, and see which attracts the customer sooner or finds the readier sale.

If sandless sponges were shipped from Rhodes or elsewhere directly for sale to the retailer, they would not pack so closely as those that were sanded, consequently the cost for freight would be materially increased; while, on the other hand, if they were packed in a compressed state to save the extra freight, the wholesale houses here would have to employ people to prepare them ready for sale, and also have boxes made to pack the sponge in. I need not say that labour in the Mediterranean is very far cheaper than in this country.

I enclose my card, and remain yours respectfully,
April 24, 1878.

W.

GLAD TO HEAR IT.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—With regard to the failure of Frank Wilton & Co., published in the April issue of THE CHEMIST AND DRUGGIST, we are surprised to find our firm mentioned therein as creditors for £7. 18s.

Our debt has not yet been proved, and subject to realisation securities held we believe we are fully secured, and cannot understand how the above amount was arrived at.

Your insertion of the above in your next issue would oblige
Fen Court, London, E.C. Yours respectfully,

May 6, 1878.

REYNOLDS & SELLERS.

The amount named was given, we presume, by the debtors on the occasion of the first application to the Bankruptcy Court.—ED. C. & D.]

THE ELECTION OF THE PHARMACEUTICAL COUNCIL.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—I was somewhat surprised to observe in the *Pharmaceutical Journal*, of May 4 last, that the editor in his article on "The Council Report" charges the Chemists and Druggists' Trade Association with aspiring to exercise electioneering influence in forthcoming elections of the Pharmaceutical Society.

I take this opportunity of repudiating the assertion; no such action has been taken by the Association—until I received a copy of the circular referred to in the editorial previously mentioned I had no knowledge that such a document was about to be issued.

W. F. HAYDEN.

Secretary

Chemists and Druggists' Trade Association.

23 Burlington Chambers, New Street, Birmingham.

May 7, 1878.

PALMAM QUI MERUIT FERAT.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—In reading your notice of Mr. Wordsworth's most valuable invention on page 172 of your issue for April, we don't think it would have been out of place to give us any merit that may attach to us as the makers of the instrument.

We are, Sir, yours obediently,

LYNCH & CO.

171A Aldersgate Street, London, E.C.

April 16, 1878.

PATENT MEDICINES.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—One of the great questions which is forcing itself upon the minds of chemists at the present day is the question of the sale of patent medicines; in fact, it has been, and is, undergoing discussion in the columns of your contemporary, the *Pharmaceutical Journal*, which I venture to say does not adequately represent the chemists of to-day, it being too scientific, and not sufficiently practical. On perusing the discussion referred to above, I cannot hold out any hopes of a valuable issue, because the arguments used in the controversy do not strike at the root of the matter, but merely affect the surface of the evil. I think I might say without fear of contradiction that patent medicines are passing out of the hands of legitimate and properly-qualified chemists into the hands of grocers, co-operative societies, Civil Service stores, and such like; and this must seriously affect the returns of chemists, more especially in large manufacturing towns where the working-class population is very much in the ascendancy; and not only that, but a great many dealers cut the price so low as to ruin the trade altogether, instances of which I could enumerate almost without end.

Now, in looking at the matter fairly, I can only see one way of dealing with it with any probability of success—a method which, I think, will commend itself to the sound judgment of all chemists who have the welfare of the trade at heart. My proposition is, that a petition be drawn up, say by the Pharmaceutical Council or the Trade Association at Birmingham, and sent to the local secretary of every town in Great Britain which contains a local association, and the secretary of the said local association wait upon the chemists in his own town and obtain their signatures, as well as those of the wholesale firms; and those chemists who belong to no local association should have a petition sent by post for their signatures to be returned, say to the Pharmaceutical Council. Copies of this petition should be sent to the members of Parliament who represent the borough or county from which the petition emanates; another copy should be sent to the Privy Council, and then an influential deputation should be formed, with a gentleman at the head who can represent the present condition of things to the Home Secretary, who, I feel confident, will look at the interests of chemists in every sense compatible with his duty.

I have tried in as small a space as possible to give you my ideas. Who will lead the van? This seems to me to be the only effectual remedy. Now or never is the time for action; week by week finds us less able to cope with the difficulty. It is said—in fact, it is almost a standing phrase—that chemists are a selfish class. Let us show for once that this is not the case; let us unite together for one common interest and one common advantage; and then it will be seen that we can combine together for mutual benefit and help, remembering that unity is strength; and by this means, I feel sure, we shall accomplish the end we have in view if we only labour with that persistency which characterised our forefathers; and thus, by this means, we shall hand down to our children and to pharmacists yet unborn, a richer heritage and a greater name than if we had merely lived for the aggrandisement of wealth.

Yours truly,

LANCASHIRE.

[Our correspondent has omitted to explain what, in his opinion, should be the tone of the petition. If the Home Secretary is to be asked to take care of the interests of chemists, how is the action recommended above going to prove our beautiful unselfishness? And why, may we ask, should we study so far above ourselves the interests of "pharmacists yet unborn?" "What has posterity done for us?"—ED. C. & D.]

THE RESPONSIBILITY OF THE PHARMACEUTICAL COUNCIL IN REFERENCE TO THE PHARMACY ACT.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—As there are so many complaints against the Pharmaceutical Society for neglecting to take proceedings under Sec. 15 of the Pharmacy Act, I just throw out a suggestion for the

various trade societies, whether the Pharmaceutical Council cannot be compelled to take action, or whether penalties could not be recovered from them if they refuse, in case a loss can be proved. I am, &c.,

March 19, 1878.

REGISTERED.

MEDICAL GLEANINGS.

THE MEDICINAL EFFECTS OF CELERY.—W. T. Ramsden, Esq., of Ravensthorpe, has sent a letter to the *British Medical Journal* saying that he has met with a case in which the effects of celery, as recorded by the local tradition, have been characteristically exemplified. A patient of his, when celery was in its prime, consumed a "whole stick" of the vegetable. During the following night and day this caused a most obstinate retention of urine, which could only be relieved by the catheter.

THE REAPPEARANCE OF AGUE.—Dr. W. B. Cheadle, Physician to the Hospital for Sick Children, Great Ormond Street, has described several cases of ague occurring in children which have been treated there during the past twelve months. In the course of his introductory remarks, he says that a case of genuine fully-developed ague or intermittent has become quite a rarity, the progress of modern improvement having almost extinguished its cause. The heavy rainfall of the past few seasons has produced a larger number of cases than had been met with during the preceding decennium.

SULPHAS AMERICANA AUSTRALIS.—In the *Philadelphia Medical and Surgical Reporter*, Dr. J. Gilbert Young states that ever since he commenced professional practice he has adopted as a synonym for quinine the title *Sulphas Americana Australis*, or South American Sulphate. By this artifice he has been able to administer the drug to patients who would have refused to take the medicine had they seen the word quinine in the prescription. He submits the question whether the general adoption of the term is advisable or necessary. In New York "chinia" has been used for the same purpose.

HYPODERMIC INJECTIONS OF DIGITALINE.—At a recent meeting of the Paris Société de Thérapeutique, M. Gubler announced that, after having made many attempts to utilise the active principles of digitalis in subcutaneous injections, he believes that he has attained his object. He uses a solution containing 0.2 per cent. of Homolle and Quevenne's amorphous digitaline in equal parts of water and alcohol. One gramme of this solution contains two milligrammes of digitaline. He injects half of the contents of the syringe; that is to say, one milligramme of digitaline, and obtains all the effects of digitalis. These injections do not bring on any local accidents.—*British Medical Journal*.

THE MAGNET AND THE EYE.—In curious connection with one of the recipes of Father Vincent, the French sorcerer, comes a note by Dr. Macdonald McHardy, published in the *British Medical Journal*. The recipe to which we refer is headed, on page 147 of the April issue of the *CHEMIST AND DRUGGIST*, "For eye diseases. Saint Claire is to be fervently invoked, the disease is to be attracted to the inner corner of the eye by the aid of a loadstone, and thence expelled by a vigorous sneeze." This looks like a degraded remembrance of the original of the method adopted by Dr. McHardy. He has succeeded in removing from the eye of a steel worker, by means of a powerful electric magnet, a fragment of steel which was imbedded so deeply in the eyeball that an attempt to extract it by any other process would have been hazardous.

THE "MEDICAL EXAMINER."—We notice that the *Medical Examiner* wishes to create a circulation among the general public. It is offering to supply news agents with Contents Bills for exhibition at their own discretion. The tendency of the offer is unmistakable, and it suggests the question whether the

journal will in all cases escape the category which contains such works as Mr. Bradlaugh's notorious tract, the "Fruits of Philosophy." If we remember rightly an argument for the defence was that Mr. Bradlaugh only brought before the public what was frequently the subject of medical works, and was therefore not more liable to prosecution than the authors of the latter. This plea was quashed by the judge because, as medical works only appeal to a small circle of specially educated readers, their contents are not likely to influence the public morality. What would be his verdict on a medical journal which appeals to the public we cannot pretend to say.

RECIPE FOR EDWARD VI.'S PLAGUE MEDICINE.—The following appeared in "Notes and Queries" for May 4, from Mr. Huth's "Paper MS. of Chaucer & Lydgato Pieces, &c.," about 1460-70 A.D.; leaf 150 bk. In our transcription we replace the old letter called "thorn" by its present phonetic equivalent *th*.

I HESUS.

"Thys ys the modesyn that the kyngis grace vsythe every day for The raynyng sekyns that now raynthe the wyche hath ben prowdy & be the grace of god yt hath the olpyn this yere lxxi personys he most take a hanfyll of rowe, a hanfyll of marygoldis, halfe a hanfyll of fetherfey, a hanfyll of byrnett, a hanfyll of sorrell, a quantyte of dragonys—the crop or the roste:—then take a potell of rvyngyng water, Fyrst wasche them clene & let them sethe esely tyl yt be a-moste cym from a potell to a qvarte of leker: then take a clene clothe, & strayne ytt & drynke yt; & yt be byttyr, prt ther-to a lytyll svger of candy, & thys may be dronkyn oftyme; & yf yt be dronkyn be-fore any prpyl a-pere, By the grase of god ther schall be no perell of no deth."

For the sake of those of our readers who do not care to puzzle this out, we translate the words into their modern spelling:—

JESUS.

"This is the medicine that the king's grace useth every day for the raining sickness that now raineth, the which hath been proved, and by the grace of God it hath holpen this year seventy-one persons. He must take a handful of rue, a handful of marygolds, half a handful of featherfew, a handful of burnet, a handful of sorrel, a quantity of dragons—the crop or the root:—then take a pottle of running water, first wash them clean, and let them seethe easily till it be almost come from a pottle to a quart of liquor: then take a clean cloth and strain it and drink it; and it be bitter, put thereto a little sugar of candy: and this may be drunken oft-times; and if it be drunken before any purple appear, by the grace of God there shall be no peril of no death."

THE CHEMICAL SOCIETY.

(Thursday, April 18.)

W. Crookes, Esq., F.R.S., in the chair.

The following papers were read:—

"On Terpin and Terpinol," by Dr. Tilden. The author prepared crystallised terpin, $C_{10}H_{20}O_2 \cdot OH_2$, by Wigger's process, and obtained the same compound from American and French turpentine, but did not procure any crystalline substance from the terpenes of the orange group. By the action of dilute hydrochloric acid on terpin, an oily body, terpinol, boiling at $205-215^\circ$, was obtained, having the formula $C_{10}H_{18}O$. By the action of dry hydrochloric acid on terpinol, a dihydrochloride was prepared. The author believes that in the preparation of terpin by the ordinary process, terpinol is formed at a certain stage of the reaction. By acting on terpin with dilute sulphuric acid, a hydrocarbon, $C_{10}H_{16}$, boiling at $176-178^\circ$, sp. gr. 0.8526, was obtained. It is optically inactive, and gives no crystalline deposit with hydrochloric acid, and no crystalline nitroso compound. The author proposes to call it terpinylene.

"The Poisonous Principle of *Urechites Suberecta*," by J. J. Bowrey. This plant grows wild in Jamaica. It has dark-green leaves, and large, bright-yellow flowers; it is locally called "Nightshade." It is known to be very poisonous. The author has extracted from the fresh leaves of the plant, by the use of alcohol and water, and a temperature not exceeding

C., a white crystalline body, urechitin, $C_{28}H_{22}O_8$, to the sence of which the plant owes its poisonous properties. It is very soluble in hot alcohol, chloroform, and glacial acetic acid; almost insoluble in water and dilute spirit. It is intensely bitter and very poisonous. It gives, with strong sulphuric acid, a characteristic colour reaction, the liquid passing from yellow through red to purple: a trace of nitric acid increases the rapidity of the colour changes. If the leaves are heated at 100° , urechitoxin is obtained, either crystalline or amorphous. This substance resembles urechitin in its chemical and toxic properties. Both substances are glucosides.

"The Temperature at which some of the Alkaloids, &c., sublimed, as Determined by an Improved Method," by A. W. Blyth. The author has determined the melting and subliming points of many active vegetable principles, and classed them in regard to their behaviour to heat for practical purposes. He has also devised a new method for determining subliming points; it consists essentially in placing the substance on a thin cover-glass floating on a bath of mercury, and examining a second cover-glass placed over the substance, from time to time, with a quarter-inch objective, the mercury being gradually heated.

Thursday, May 2.

GLADSTONE, F.R.S., President, in the chair.

A lecture "On the Chemical Aspect of Vegetable Physiology," by Sidney H. Vines. The lecturer commenced by giving a historical sketch of our knowledge of the absorption of carbonic acid and the evolution of oxygen by plants, the germination of starch grains, and the functions and nature of chlorophyll. Sachs first proved that starch grains are formed in plants which are bleached, from the absence of light, and that their formation in the chlorophyll corollas depended on the exposure of the plant to bright sunlight. Godlewski showed that if no carbonic acid was present, starch grains were formed. So there are two sets of phenomena, viz., the evolution of oxygen (with absorption of carbonic acid) and the formation of starch grains, for both of which three conditions are essential, viz., sunlight, chlorophyll, and carbonic acid. These two sets of phenomena are therefore probably connected and belong to the same function. Great diversity of opinion exists both as to the composition and functions of chlorophyll. The lecturer gave a short account of the views brought forward by Pringsheim, Karl Kraus, Rüdiger, Wiesner, &c., and entered more in detail into the experiments and theories advanced by Sachs. In the second part the lecturer considered the formation of vegetable acids, and pointed out that the views of Liebig and Mulder had not been confirmed by subsequent experiments. The part played by pyrocatechin, asparagin, &c., in the formation of carbohydrates was next considered, and the lecturer concluded by pointing out the necessity for quantitative work before we could hope to obtain clearer and more certain views on the important functions of assimilation, excretion, &c., in the vegetable kingdom.

The Poison Cupboard.

POISONING BY CINCHONA WINE.—M. Chevallier records in the *Repertoire de Pharmacie* a case of poisoning by cinchona wine, happily not attended with fatal consequences. It is suggested that the wine had been prepared with some poisonous bark mistaken for cinchona.

APOMORPHIA AND QUININE.—The *Medical Brief* says:—"It has been noticed in several cases that when one quarter of a grain of morphine would not produce sleep, if 10 grains of quinine were administered a short time previous to administering the morphine, the morphine would almost invariably act efficiently. This fact was noticed in connection with puerperal cases.—*London Med. and Surg. Journal*.

CONIUM MACULATUM.—At the meeting of the Linnean Society on March 21, the secretary read an abstract of a paper by Mr. Gorham, which showed that by registering the veinlets of a leaf of the leaf $\frac{1}{2}$ inch long and $\frac{1}{2}$ inch wide, and constructing from these a figure, an exact counterpart of the venation of the leaf results. Comparisons of the leaves of different umbelliferous plants prove that each can be detected and recognised from the merest fragments.

APOMORPHIA was discovered in 1868. It is already a favourite in Germany; the writers in *Ziemssen's Cyclopædia* not infrequently refer to it. Its emetic properties act with promptness and energy, with slight nausea and transient after-effects. It depresses much less than many other emetics. It is especially suitable for subcutaneous injection—in young, or rebellious, or obtuse subjects. In minute doses—1-60th to 1-20th grain—it acts as a remarkably efficient expectorant, causing a free secretion of bronchial mucus. Its usefulness is well attested in croup, capillary bronchitis, catarrhal pneumonia, and œdema of the lungs. It has also been employed in epilepsy and *mal de mer*.—*Proceedings of County Kings (U.S.) Medical Society*.

PRUSSIAN POTASH.—MM. J. Regnault et Hayem conclude, from researches they have made, that (1) ferrocyanide of potassium is inactive as a ferruginous medicine, and that it does not aid in producing the coloured elements of the blood; (2) that the ferrocyanogen does not split up in the system, and that, like the iron, the prussic acid it contains has lost its normal powers; (3) that in doses of from 2-6 grammes potassium ferrocyanide does not act appreciably as a diuretic.

THE ACTIVE PRINCIPLE OF HEMLOCK.—M. Mourrut has been critically investigating this subject, and has embodied the results of his researches in a "Note" presented to the Société de Biologie on February 9, 1878. The alkaloid known as conine was discovered in 1826, and its properties have been since investigated by Christison, Gligler, Orfila, Harley, and Martin-Damourette, with very different results. This is due to the fact that conine is rarely obtained pure, being contaminated with ammonia, methyl conine, benzine, alcohol, essential oil, and perhaps other matters. The writer we quote has obtained chlorhydrate and bromhydrate of the base which, even when prepared from many different sources, possess a uniform composition and activity. It was found by M. Tiryakian that by subcutaneous injection a dose of 50 centigrammes of bromhydrate killed a dog weighing 7 kilogrammes in 27 minutes, while 90 centigrammes of the alkaloid from which the salt had been prepared failed to produce an equal effect. Administered by the stomach, alkaloid and salt have equal powers; but as 50 grammes of the latter contain but 30 grammes of the former, it is evident that the bromhydrate has more powerful toxicological properties than its base. Pure conine prepared from its salts has an action differing from that of the alkaloids which have been previously used under this name. The former acts only on the spinal cord and the encephalon; the motor nerves are affected by the latter only because it contains a little-known resinous liquid discovered by M. Mourrut. Experiments made by M. Audhouy at the Hôtel Dieu prove that the human organism rapidly habituates itself to the action of the drug.



SALT-WATER is proposed as an agent for taking ink spots out of cotton goods.

VEGETABLE IVORY is the name given by its inventor, M. Turpin, to caoutchouc hardened with magnesia.

RAT-PROOF PAINT.—Mix finely-powdered glass with pitch or coal tar and rosin, and paint the outside of your grain bin with two coats, and it will be too much for rats' teeth. They don't like the tar, and the sharp glass is still more disagreeable.

A FATHER lately induced a croupy little boy to make a healthy meal of buckwheat cakes and molasses, but the latter proved to be syrup of squills. The boy said he thought something ailed the molasses the very minute his father told him to eat all he wanted.

THE Grocer informs us that a well-known maker of marmalade and grocers' specialities recently despatched a ton of senna to Australia, presumably consigned to grocers. The same dealer exports to the same place about forty tons a year of Epsom salts, and a large quantity of castor oil.

PRESERVATION OF ANATOMICAL PREPARATIONS.—M. Personne recently exhibited, at a meeting of the Academy of Medicine, a number of preparations taken from a subject which had been injected with a solution of chloral hydrate five years previously. They were in very perfect condition, although they had been exposed to the atmosphere for so long a period without any other precaution than that of keeping them dry.—*Medical Examiner.*

MR. JAMES HOWARD, of Bedford, in a letter to the *Times* of May 2, gives the following recipe for pickling seed corn, in such a manner that the seed shall not be taken by the rooks, nor the latter wantonly destroyed. He recommends:—For a sack of corn (four bushels), half a pint of gas tar, 1 lb. of vitriol, and one gallon of hot water; pour the liquid, well mixed, over the seed with a common watering-pot 12 hours before sowing. If thus treated, rooks will not touch seed corn of any kind, for they, as well as other birds, appear to have a great dislike of the tar.

The gentleman whose name stood second in the Cambridge University Classical Tripos, published on March 21, was that of Mr. Frazer, of Glasgow, a son of Mr. D. Frazer, the well-known chemist of that city. Mr. Frazer, jun., was educated at Larchfield Academy, Helensburgh, by Mr. Mackenzie, and graduated, M.A., with first-class honours in classics, at the Glasgow University in a five years' course. He entered Trinity, Cambridge, 1873, and at Christmas of that year obtained a minor scholarship, and in 1875 a foundation scholarship, which carries with it 100*l.* per annum for a term of years.

Trade Notes.

MR. EDWARD NICHOLSON, late of Lindley, Huddersfield, has purchased from the executors the business carried on for 20 years by the late Mr. Alderman W. B. Maltby, of Lincoln.

MR. HENRY J. PRATT, of York, the proprietor of Agnew's Cod Liver Oil Jelly, has purchased from the widow of the originator the sole right in the manufacture of Siddall's celebrated Beetle Powder. He offers it on good terms to the trade.

MR. WILLIAM GIBSON has become the sole proprietor of the business of surgical glass blowers, druggists' sundriesmen, &c., previously carried on at 63 Bartholomew Close, London, by Messrs. W. Gibson & Co. The title of the business will remain as before.

THE REFRESHING properties of the Eucalyptus have been combined by Messrs. Whitaker & Grossmith with a toilet vinegar, and the compound, which is sold as Eucalyptus Toilet Vinegar, has an odour which is extremely agreeable and, if we may say so, ozonic. In a close room a spray of this vinegar gives the effect of a breath of morning air. The same firm has already made a considerable success with a Eucalyptus Soap.

MESSRS. D. JUDSON & SON, always forward with useful novelties, have introduced an attractive-looking set of apparatus for re-gilding picture frames, for illuminations, and general gold decoration. The set comprises a little bottle of gold paint powder, a bottle of resinous solution for mixing up the compound, a cut glass mixing-bowl, a small brush, and a specimen of moulding partly gilded. The whole set is fixed on a card, and sells for 1*s.* 6*d.*

MANY READERS will thank us for referring to the illustration which appears in our advertisement pages of a handsome glass stand offered by Messrs. A. & F. Pear, the eminent perfumers, for 20*s.* It is especially intended for holding a supply of their well-known transparent soap balls, and with these in it there can hardly be a more appropriate or attractive ornament for the counter. It is hardly necessary for us to add a word in praise of the soap itself, which has so long retained its reputation as the purest and most agreeable in the English market.

MR. JOHN ASKEW, chemist, Caruforth, has just opened a branch shop at Grango-over-Sands.

MR. JOHN HOWARTH, of Preston, is about to commence business in Wellington Street, Douglas, Isle of Man.

MR. CHARLES PRETTY has sold his business at 57 Market Place, Leicester, to Mr. S. H. Cadoux, late of Parsons & Cadoux.

TOILET SANITAS SOAP.—The Sanitas Company have lately introduced a toilet soap to sell in sixpenny tablets, in which they have incorporated the qualities of their now well-known antiseptic and disinfectant. The soap is semi-transparent, and very agreeable in use.

MR. HICKISSON has introduced a new counter case to show effectively his marking inks—the Daughter of the late John Bond's. A frame at the back gives a specimen of the work accomplished—a large view of the Crystal Palace, and the Royal Arms are emblazoned in gilt on the front. This case filled is supplied for 18*s.*

THE DIAMOND SOLUBLE CAPSULE COMPANY, of 305, New City Road, and 12, West Garden Street, Glasgow, have commenced business with the assistance of the manager and principal assistants of the late Dr. Milner and Mr. R. T. Dunn. Messrs. Milner & Dunn's capsules had always an excellent reputation, and, judging from a sample sent to us by the new company, this character will be in no degree depreciated in their hands.

IN REFERENCE to the Bronchitis Kettle, which we noticed last month, Messrs. James Allen & Son, the makers, write:—"As regards the defect you point out in the last four lines of your notice, we can only say it was never intended that the cavity for medicinal matter should be used for herbs or leaves. We consulted some of the best text books on throat and chest diseases, and we did not see any mention made of herbs being used, but only liquids or tinctures. We can, however, enlarge the well for herbs when required."

A COMPLETE and very interesting collection of crucibles, scorification and cupellation furnaces, muffles, and all the appliances for the processes of assaying, the whole manufactured and presented by the Plumbago Crucible Company, of Battersea, London, has been arranged in the laboratory of the School of Mines, New York. The principal of the school, Professor P. de P. Ricketts, has written to the company expressing his thanks for the donation, and remarking in terms of warm commendation on some of the productions, which, he says, "are a great improvement on anything I have seen here."

IN CONSEQUENCE of declining health, Dr. Ayrton retires from the firm of Messrs. Ayrton & Saunders, and from the Liverpool Patent Lint Company. He was the senior partner in these firms. The wholesale druggists' sundry business will still be carried on under the style of Ayrton & Saunders—Mr. Saunders being the principal. The lint will be carried on under the style of Messrs. Samuel Shaw Brown & Company. Mr. Samuel Shaw Brown is the gentleman who wrote an excellent article on Lint, published in *THE CHEMIST AND DRUGGIST* of April, 1873, and is the patentee of several improvements in its manufacture.

SAUNDERS'S FEEDING BOTTLE.—Messrs. Ayrton & Saunders, of Liverpool, are patentees of a feeding bottle which has some marked features in respect to the fittings. These are composed entirely of pure black rubber, and thus the dangers said to be lurking in the white variety are avoided. The cap is composed only of black rubber, which fits closely to the neck of the bottle, and obviates the troubles arising from the cork linings. Lastly, the teat is enlarged below the neck to a hollow ball, which corresponds somewhat to the breast, and is certainly an improvement on the cold wooden or bone shield. An illustration of the bottle with fittings complete will be found in our advertisement section.



following list has been compiled expressly for THE CHEMIST AND DRUGGIST by G. F. Redfern, Patent Agent, successor to L. de Fontaine-bleau & Co., 4 South Street, Finchbury, London; and at Paris and Brussels.]

Applications for Letters Patent:—

Aerated Waters, &c.—No. 1450.—E. Howard and T. Fardon, both of Whitecross Street, London. Improvements in the manufacture and drawing off of aerated waters, and in machinery therefor. Dated April 11, 1878.

Aerated Waters, &c.—No. 1573.—A. Collingridge, of 85 Gracechurch Street, London, and R. F. Lecerf, of Gravesend, Kent. Improved prepared liquors, or agents for admixing with alcoholic and vinous substances, and also applicable to the manufacture of aerated waters and other beverages. Dated April 18, 1878.

Aerated Water.—No. 1738.—J. Ferguson, of Ashton Keynes, Wiltshire, soda-water manufacturer. Improvements in machinery or apparatus for making and bottling soda-water and other aerated liquids. Dated April 30, 1878.

Analytical Oil Palette.—No. 1597.—H. Rouaix, of Paris, merchant. An analytical palette of oils. Dated April 20, 1878.

Atmospheric Purifier.—No. 1575.—W. Lawrence, of London, engineer. Improvements in apparatus for atmospheric purification. Dated April 18, 1878.

Bottles, &c.—No. 1649.—H. De Harilaos, of the Consulate, Naples, Italy. Improvements in the manufacture of bottles and other necked vessels. Dated April 24, 1878.

Bottles.—No. 1663.—T. Davies, of Clifford's Inn, London, and W. H. Staupoole, of the Inner Temple, London. An improved construction of bottle or vessel for keeping the liquor in the bottle airtight whilst portions of the liquor are being drawn from the bottle or vessel. Dated April 25, 1878.

Bottling Machine.—No. 1307.—L. Rose, of 11 Curtain Road, Finchbury, London, lime-juice merchant. An improved bottling machine for aerated waters. Dated April 3, 1878.

Bottling Machine.—No. 1483.—O. Stephenson, horehound beer manufacturer, and W. Cordingley, engineer, both of Wakefield, Yorkshire. Improvements in apparatus for filling bottles with beer and non-gaseous or partly non-gaseous liquids. Dated April 13, 1878.

Bromine.—No. 1705.—H. Simon, a communication from Dr. A. Frank of Charlottenburg, Germany. Improvements in the process and apparatus for developing bromine. Dated April 29, 1878.

Bottle-tilter.—No. 1466.—D. Foster, of Sheffield, Yorkshire. Improvements in self-acting tilting apparatus for barrels, casks, and the like articles. Dated April 12, 1878.

Bottling Gums and Oils.—No. 1517.—F. S. Barff, of Kilburn, London, Professor of Chemistry. Improvements in the treatment of gums and of oils, so as to render them more suitable for the production of varnishes. Dated April 16, 1878.

Colouring Matters.—No. 1715.—F. Wirth.—A communication from W. Meister, E. Lucius, Doctor of Philosophy, and A. Bruning, Doctor of Philosophy, all of Höchst-on-the-Maine, Germany. Improvements in colouring matters and in the manufacture of the same. Dated April 29, 1878.

Compressing Gases.—No. 1361.—E. G. Wheeler, of the Strand, London. Improvements in and appertaining to machinery or apparatus for compressing ammoniacal and other gases, parts of which improvements are also applicable to machinery for compressing air, and to other purposes. Dated April 5, 1878.

Copying Ink Powder.—No. 1586.—W. R. Lake.—A communication from N. Jacobson, of Berlin, Prussia, manufacturer. Improvements in the manufacture of copying ink powder and extract. Dated April 18, 1878.

Deodorizing.—No. 1885.—S. Johnson, of Wood Green, London. Improvements in apparatus for supplying water-closets with deodorising and disinfecting material, and for purifying water in filters, cisterns, or other vessels. Dated April 18, 1878.

Determining Organic Matters.—No. 1504.—J. A. Wanklyn, Professor of Chemistry, and W. J. Cooper, analytical chemist, both of Westminster Chambers, London. Improvements in the method of determining organic matters contained in solutions. Dated April 15, 1878.

Distilling Spirits.—No. 1406.—D. Walker, of Liverpool, distiller. Improvements in apparatus for distilling alcoholic spirits. Dated April 9, 1878.

Enemas.—No. 1474.—J. G. Ingram, of the London Indianrubber Works, Felsted Street, Hackney Wick, London. Improvements in the manufacture of enemas, syringes, and other similar articles of indianrubber. Dated April 12, 1878.

Forceps, &c.—No. 1698.—D. Furniss, of Sheffield, Yorkshire. Improvements in the manufacture of razors, part of the said improvements being applicable to the manufacture of forceps, and other surgical and dental instruments. Dated April 27, 1878.

Feeding Bottles.—No. 1697.—G. W. von Nawrocki.—A communication from E. Siebenlist, of Berlin, Prussia. Improvements in indianrubber pieces for infants' feeding bottles, with a contrivance admitting air. Dated April 27, 1878.

Filters.—No. 1298.—E. C. Prentice, of Stowmarket, Suffolk. Improvements in filter presses. Dated April 2, 1878.

Galvanic Batteries.—No. 1522.—P. Grabinger, of Athens, Greece. Improvements in elements or parts of galvanic batteries. Dated April 16, 1878.

Generating Gaseous Vapours, &c.—No. 1531.—K. H. Cornish, consulting surgeon, of 54 Summerville Road, Peckham, London. Improved processes for generating gaseous vapours or calorifying liquids, applicable for combustion, distillation, and other manufactures wherein vapours, gases, or calorified liquids may be beneficially generated and utilised. Dated April 17, 1878.

Infusions and Decoctions.—No. 1551.—T. J. Constantine, of 61 Fleet Street, London. An improved construction of compound apparatus for cooking purposes, and for the production of infusions and decoctions from substances. Dated April 17, 1878.

Inhalers.—No. 1297.—H. J. Hadlan.—A communication from L. E. and S. A. Felton, both of Potsdam, New York, United States. Improvements in inhalers. Dated April 2, 1878.

Inspirators.—No. 1637.—W. M. Brown.—A communication from H. M. Whitney, president of the Hancock Inspirator Company, of Boston, Mass., United States. Improvements in inspirators. Dated April 24, 1878.

Invalid Dressing Stand, &c.—No. 1524.—B. Barnard, of St. Paul's Road, Canonbury, London. Improvements in washing and dressing stands, and tables for invalids and others, which improvements may be applied to other articles of furniture or use. Dated April 16, 1878.

Liquid Register.—No. 1494.—J. E. Holme, of Hull, Yorkshire, engineer. Improvements in apparatus for registering the flow of liquids. Dated April 15, 1878.

Manure.—No. 1529.—H. Hartmann, of Greiffenberg, Prussia. Improvements in the manufacture of manure. Dated April 17, 1878.

Oil Press Plates.—No. 1778.—H. Holt, of High Street, Kingston-upon-Hull, seed crusher. Improvements in oil press plates. Dated May 2, 1878.

Picric Acid.—No. 1444.—B. Sieger, of Fenchurch Street, London. An improved process for manufacturing picric acid. Dated April 11, 1878.

Pill Boxes.—No. 1367.—T. L. Alemand, of Pentonville Road, Islington, London. Improvements in pocket boxes for containing matches, pens, pills, and similar small articles. Dated April 6, 1878.

Preserving Meat, &c.—No. 1766.—C. Laurent, apothecary, of Paris. An improved process for preserving fish, flesh, or fowl, and for embalming. Dated May 2, 1878.

Preserving Meat.—No. 1686.—E. Van de Velde, of Dalston Lane, London. Improvements in preserving meat, fish, poultry, and other similar substances of food. Dated April 26, 1878.

Racking Apparatus.—No. 1314.—J. Smith, of Derby, manufacturer. Improvements in racking apparatus or apparatus for filling casks and other vessels with liquids. Dated April 3, 1878.

Recovering Indigo, &c.—No. 1612.—F. Wirth.—A communication from F. V. Kallah, chemist, of Wiese, Austria. Improvements in the method of recovering indigo, which method is also applicable for other purposes. Dated April 22, 1877.

Refrigerators.—No. 1408.—G. Pickett, of Clapham, London, agent. Improvements in refrigerators. Dated April 9, 1878.

Revivifying Spent Lime.—No. 1591.—G. R. Hislop, of Paisley, gas engineer, and W. Young, of Clippens, oil works manager, both of Renfrewshire, North Britain. Improvements in revivifying spent lime, and in the means or apparatus therefor. Dated April 20, 1878.

Spray Diffuser.—No. 1324.—W. W. Rolston, thermometer maker, of Constitution Hill, Birmingham. The diffusion of the liquids in the form of spray, the title of which is "Rolston's spray diffuser." Dated April 4, 1878.

Soap.—No. 1486.—W. R. Lake.—A communication from J. Hilgers, of Rheinhrohl, Germany. Improvements in the manufacture of buoyant or floating soap. Dated April 13, 1878.

Soap.—No. 1665.—A. Hampel, of Dresden, Germany. An improved shaving soap or lather. Dated April 18, 1878.

Stoppers.—No. 1410.—W. R. Lake.—A communication from F. Koeller, of Neulengbach, near Vienna, Austria, doctor of medicine. Improvements in the manufacture of stoppers for bottles and similar receptacles. Dated April 9, 1878.

Stoppers.—No. 1536.—H. H. Bulkeley Johnson, of Dowgate Hill, London, merchant. Improvements in stoppering, closing, or covering bottles, jars, casks, and other like receptacles. Dated April 17, 1878.

Stoppers.—No. 1601.—F. B. Mitchell, of Plymouth, Devonshire. Improvements applicable to stoppering bottles for facilitating the discharging and filling of same, and cleaning them. Dated April 20, 1878.

Stoppers.—No. 1653.—C. Farrew, of Great Tower Street, London, wine and spirit merchants' engineer. An improved stopper for bottles, jars, and other similar articles. Dated April 26, 1878.

Stoppers.—No. 1693.—B. Martin.—A communication from C. Maré, of Nantes, Franco. Stoppering and covering bottles, jars, pots, and other similar vessels. Dated April 27, 1878.

Stoppers.—No. 1708.—C. M. Sombart.—A communication from M. & M. Bejach, both manufacturers, of Berlin, Germany. Improvements in stoppers. Dated April 29, 1878.

Sulphuric Acid.—No. 1523.—F. Wirtb.—A communication from C. Lange, C. Göpner, both of Opladen, Germany. Improvements in the manufacture of anhydrous sulphuric acid, oil of vitriol, and hydrous sulphuric acid, which improvements relate also to the concentration of sulphuric acid containing water. Dated April 16, 1878.

Surgical Gloves.—No. 1532.—S. Forster, of the Indiarubber Works, Streatham, Surrey. Improvements in the manufacture of gloves or coverings for the hands for use in surgical or other operations where it is essential to cover the hands, yet retain delicacy of touch. Dated April 17, 1878.

Surgical Wool.—No. 1459.—A. Ford, of 6 St. John's Wood Place Regent's Park, London. Improvements in the method of preparing cotton or flax wool for surgical or medical purposes. Dated April 12, 1878.

Tartaric Acid.—No. 1384.—F. Wirth.—A communication from F. Dietrich, chemist, of Murten, Switzerland. Improvements in the manufacture of tartaric acid. Dated April 6, 1878.

Thermometers.—No. 1351.—E. Roberts, of 6 Rydon Crescent, Clerkenwell, London. Improvements in the method or means of permanently affixing the divisions, figures, and markings to glass tubes or cylinders employed in the manufacture of clinical and other thermometers, which improvements are applicable to graduated glass tubes or cylinders of every description. Dated April 5, 1878.

Thermometers.—No. 1594.—E. J. M. Cetti, of 11 Brooke Street, Holborn, London, glass blower and thermometer manufacturer. An improved method of rendering permanent and immovable the divisions, figures, markings, and scales affixed to thermometers and cylindrical scientific measuring apparatus generally. Dated April 29, 1878.

Treating Excreta, &c.—No. 1,685.—J. Harescough, sanitary engineer, I. A. Collinge, analytical chemist, J. Hoyle, J. Robinson, and W. Howarth, engineers, all of Rochdale, Lancashire. Improvements in the means or apparatus employed in treating excreta, blood, and other refuse. Dated April 26, 1878.

Treating Oil.—No. 1,945.—W. R. Lake.—A communication from H. A. Clark, of Boston, Mass., United States. An improved process or mode of treating vegetable oils to adapt them for use in the preparation of waterproof cloth and the like. Dated April 4, 1878.

Treating Sewage, &c.—No. 1,417.—S. Hallsworth, of Armley, and R. Bailes, of Woodhouse Carr, both near Leeds, Yorkshire. Improvements in the means or method employed for treating and utilising the mud or sludge precipitated from sewage or other impure waters in the operation of clarifying the same, such improvements being also applicable for treating and clarifying sewage or other impure waters, and for other purposes. Dated April 9, 1878.

Treating Waste Dye Liquor.—No. 1,674.—B. H. Remmers, of Glasgow, North Britain. Improvements in treating the waste liquors from dye-works, and recovering the colouring matter therefrom. Dated April 25, 1878.

Wine Cases, &c.—No. 1,455.—W. Hurst of Dublin, Ireland. Improvements in the construction of cases for packing wine or other bottles. Dated April 11, 1878.

Letters patent have been issued for the following:—

Ammoniacal Salts.—No. 891.—J. Barrow, of the Dalton Chemical Works, Clayton, near Manchester, manufacturing chemist. Improvements in manufacturing ammoniacal salts and utilising certain waste products. Dated March 6, 1878.

Artificial Teeth.—No. 3986.—J. H. Gartrell, of Penzance, Cornwall. An improved apparatus for moulding plates of celluloid vulcanised indiarubber, or similar material for artificial teeth. Dated October 27, 1877.

Caustic Alkalies.—No. 4144.—B. W. Farnell, of Liverpool. Improvements in the manufacture of caustic alkalies, and in apparatus or appliances used therein. Dated November 7, 1877.

Colouring Matters.—No. 786.—J. H. Johnson.—A communication from H. Caro, chemist to the Badische Anilin and Soda Works, of Mannheim, Germany. Improvements in the production of colouring matters suitable for dyeing and printing. Dated February 25, 1878.

Discharging Bottles, &c.—No. 4116.—G. W. von Nawrocki.—A communication from Dr. J. A. G. Müller, of Lohne, Oldenburg, Germany. Improvements in apparatus for discharging regulated quantities of liquid from bottles and similar receptacles, also applicable for charging the said bottles with liquid. Dated November 5, 1877.

Drying Apparatus.—No. 4019.—F. Wirth.—A communication from G. Crespel, of Frankfort-on-the-Maine, Germany. Improvements in drying apparatus for scientific and chemical purposes. Dated October 30, 1877.

Enema Syringes.—No. 765.—M. Mattson, of New York, United States, doctor of medicine. Improvements in enema syringes. Dated February 23, 1879.

Evaporating Apparatus.—No. 3731.—J. R. Harper, of London. Improvements in evaporating apparatus. Dated October 9, 1877.

Evaporating Apparatus.—No. 301.—W. M. Brown.—A communication from J. H. White, of Lima, Peru, South America. Improvements in the method of and in the apparatus for continuously evaporating cane and other saccharine juices, solutions of salt, and other liquids increasing in density by evaporation. Dated January 23, 1878.

Filters.—No. 3725.—E. P. Alexander.—A communication from F. Walbreath and W. Nugent, both of New York, United States. Improvements in water filters. Dated October 8, 1877.

Filters.—No. 3943.—L. Sallien, of Brussels, Belgium. An improved apparatus for filtering liquids applicable also to other similar purposes. Dated October 24, 1877.

Forceps.—No. 4128.—L. A. Pichon, of Rue des Saussaies 14, Paris. Improved scissors with jointed rings, also applicable to forceps. Dated November 6, 1877.

Food Preparations.—No. 4962.—C. Morfit, of London. Improvements in the manufacture of animal and vegetable food preparations. Dated November 1, 1877.

Lozenge Machines.—No. 4172.—H. J. Haldan.—A communication from T. Robertson, of Toronto, Canada, mechanical engineer. Improvements in lozenge machines. Dated November 8, 1877.

Marking-ink Stretchers.—No. 54.—H. C. Stephens, of 171 Aldersgate Street, London, chemist. Improvements in stretchers used in marking linen and other such like articles, and the cases or boxes in connection therewith. Dated January 4, 1878.

Medical Wooden Boxes.—No. 3842.—J. Rogers, of Walworth, London, wood turner. Improvements in machinery and tools to be used in connection therewith for the manufacture of turned wooden boxes used for medical and other purposes, such improvements being partly applicable for other purposes. Dated October 17, 1877.

Mineral Gum.—No. 4085.—J. T. Way, of 9 Russel Road, Kensington, London. Improvements in the manufacture of mineral gum, and in its use for stiffening, adhesive and glazing purposes. Dated November 2, 1877.

Preserving Eggs.—No. 395.—R. Gerstl, of 7 Clifton Villas, Camden Square, scientific chemist. Improvements in the preservation of eggs. Dated January 30, 1878.

Refrigerating Liquids, &c.—No. 4857.—W. Young and A. Neilson, both of Clippens, North Britain. Improvements in refrigerating liquids and in the means employed therefor, also in apparatus for the subsequent treatment of the refrigerated liquids. Dated December 21, 1877.

Spray Diffusers.—No. 3959.—H. Schildberg, of Moorgate Street, London, merchant. An improved apparatus for sprinkling or dispersing spray, scents, disinfectants, and other liquids. Dated October 1, 1877.

Stoppers.—No. 164.—G. & E. Edmonds, both of Birmingham, manufacturers. Improvements in stoppers for bottles used to hold aerated liquids and other liquids under pressure. Dated January 12, 1878.

Stoppers.—No. 890.—W. H. Hicks, of Brooklyn, N.Y., United States. Improvements in stoppers and stopper-fastenings for bottles and other similar vessels. Dated March 5, 1878.

Treating Excreta.—No. 3977.—Major-General H. Y. D. Scott, of Ealing, Middlesex. Improvements in the treatment of excreta and other refuse matters containing nitrogen compounds for the manufacture of manures. Dated October 27, 1877.

Treating Phosphates.—No. 120.—W. R. Lake.—A communication from the Th. Pelter & Company, of Paris. Improvements in the treatment of carbonated mineral phosphates for agricultural and manufacturing purposes. Dated January 9, 1878.

Treating Pyroxylin.—No. 4771.—F. A. Zimmermann.—A communication from E. Schering, of Berlin. Improvements in the treatment of pyroxylin for pharmaceutical, photographic, and other purposes. Dated December 15, 1877.

Treating Sewage.—No. 12.—H. Robinson and J. C. Melliss, both of Westminster Chambers, Victoria Street, London, engineers. Improvements in the treatment of sewage and impure waters. Dated January 1, 1878.

ating Spent Oxide of Iron, &c.—No. 4118.—P. Spence, of Manchester, manufacturing chemist. Improvements in the treatment of spent oxide of iron arising from the manufacture of gas for the purpose of obtaining certain valuable products, and for rendering the said oxide again fit for use. Dated November 5, 1877.

Publications published during the month :—

Postage 1d. each extra.

1877.

W. E. Bovill. Treating street refuse. 2d.
F. A. Bonefin. Apparatus for filtering and separating solid matters from liquids. 8d.
J. Frost. Treating the residuum in the purification of sewage. 4d.
J. Riley. Manufacture of salt enke, alkaline carbonates, &c. 2d.
K. Knott. Apparatus for preparing and preserving meat for transportation, &c. 6d.
F. J. Chevet. Concentrated food. 2d.
W. Wilkinson. Bottle holders. 2d.
J. Mason. Treating residues from the production of sulphuric acid. 4d.
D. McKechnie and W. Gentle's "Manufacture of sulphuric acid, 2d.
N. Thompson. Stoppers for bottles, &c. 2d.;
C. Gerson. Filtering apparatus. 6d.
J. Derbyshire. Filter presses. 6d.
F. J. & J. G. Chapman. Bottling or stoppering barn, beer, &c. 6d.
J. Cooper. Bottle stoppers. 6d.
A. J. Avenell. Bin case. 6d.
G. J. Hutchings. Spiced vinegar. 6d.
H. Conradi. Oil cup with syringe. 6d.
E. Belmer. Capsuling bottles, &c. 6d.
C. Hnmfrey. Treating phosphates for the elimination of alumina therefrom. 4d.
H. Garth and J. Ostler. Extracting alcohol, acetic acid, &c., from locust beans. 4d.
H. Berlon and I. Fürstenhagen and H. Wildt. Filters, &c. 6d.
T. I. Alberdingk. Destroying noxious vapours. 6d.
T. Lewis and J. Hughes. Stoppering bottles. 2d.
E. P. H. Vanghan. Preserving animal and vegetable substances. 4d.
H. Bolleter. Preserving animal substances for food. 2d.
E. P. Alexander. Manufacture of sulphate of alumina. 2d.
B. B. Standen. Treating sewage, &c. 6d.
G. C. Roberts. Refrigerating, and apparatus therefor. 6d.
E. J. Hobbs. Apparatus for the treatment and cure of fevers, &c. 2d.
W. F. Stanley. Colours. 6d.
C. Ellis. Caps or covers for glass bottles, flasks, &c. 2d.
C. Maher. Casks, packing cases, &c. 6d.
T. McCormick. Liqueur and other cases, &c. 6d.
C. Dagnall. Vent pegs. 2d.
W. North. Stoppers for bottles. 6d.
C. B. Robson. Diffusing and inhaling apparatus. 6d.
G. Hindfield. Treating drying oils and varnishes. 6d.
E. Johnson and J. Robey. Filtering medium. 4d.
J. H. Johnson. Manufacture of chloride of lime. 2d.
J. Gray. Treating and utilising sewage, &c. 4d.
K. Knott. Apparatus for refrigerating, &c. 2d.
W. R. Lake. Pessaries. 6d.
W. Clmrk. Food for animals. 2d.
W. R. Lake. Producing and applying magneto-electricity. 6d.

Obituary.

ALTER.—January 5, 1878, Mr. David Soutter, chemist and druggist, Grimsby. Aged 30 years.
STER.—February 16, 1878, Mr. William Henry Foster, chemist and druggist, Great Crosby. Aged 47 years.
LE.—March 20, 1878, Mr. Thomas Lee, chemist and druggist, Wem. Aged 66 years.
YNN.—March 26, 1878, Mr. William Glynn, pharmaceutical chemist, May. Aged 57 years.
ANS.—March 26, 1878, Mr. Thomas Slann, chemist and druggist, Birmingham. Aged 39 years.
IGHTON.—April 2, 1878, Mr. John Hunter Lighton, pharmaceutical druggist, Durham. Aged 54 years.
ELSON.—February 23, 1878, Mr. Richard Wilson, chemist and druggist, Cross, Derbyshire. Aged 54 years.
ILEY.—April 12, 1878, Mr. Leonard Abnham Uttley, chemist and druggist, Blackburn. Aged 48 years.
IRST.—April 27, 1878, at North Walsham, Mr. Albert Richard Priest, chemist and druggist, formerly of Parliament Street, Westminster. Aged 45 years.
OWELL.—April 30, 1878, after a long and painful illness, Mr. Rowland Bell, chemist and druggist, Temple Street, Bristol. Aged 60 years.



BANKRUPTS.

FLEETWOOD, THOMAS, Widnes, chemical manufacturer. April 12.
LEYS, HENRY, 5 St. Thomas Street, Melcombe Regis, dentist. April 27.

LIQUIDATIONS BY ARRANGEMENT OR COMPOSITION.

Notices of first meetings of creditors have been issued in re the following estates. The dates are those of the "London Gazette" in which the notices first appeared.

BEST, ROBERT STORR, Manor House, Walkeringham, and East Stockwith, chemical manure manufacturer. April 5.
BROOM, WILLIAM WILEY, 2 Queen Street, Exeter, druggist. April 30.
CLOSE, JOHN, and LEGG, JOHN CHARLES, 28 Jewry Street, Aldgate, and 91 Lendenhall Street, wholesale druggists. April 26.
COLLEY, JOHN, North Street, Ripon, chemist. May 2.
DITCHETT, WILLIAM EDWIN, Lonth, surgeon. April 8.
DUCKERS, HENRY, Market Drayton, chemist, druggist, and grocer. April 15.
EYRE, THOMAS TAYLOR, Hayfield, chemist and druggist. April 15.
GREEN, ROBERT, 21 Nelson Street, Greenwich, chemist. April 25.
HANSON, JOSEPH, Hunsworth Chain Bar, Cleckheaton, manufacturing chemist. April 18.
KNIGHT, LLEWELLYN, 56 Broad Street, Birmingham, and 16 Pall Mall, Hanley, oculist and aurist. April 27.
MACRAE, DONALD, 2 Back Church Lane, and 75 Hackney Road, and Manor House, Leyton, surgeon, late Walton, Liverpool. April 1.
POWLEY, PHILIP, Norton Road, Stockton-on-Tees, herbalist. April 15.
QUICK, JOHN ROY, Gussage All Saints, surgeon. April 8.
REVILL, SAMUEL, Ilkeston, veterinary surgeon. April 16.
SARGENT, GEORGE PEARSE, 9 Dorrell Place, late 364 Brixton Road, M.D. April 26.
TREND, HENRY GRISTOCK, 26 Petherton Road, Highbury New Park, and 26 Mildmay Road, Stoke Newington, M.D. April 16.
WILLIAMS, JOHN, Hanley, mineral water manufacturer. May 4.
WILTON, FRANK, 66 Mark Lane, and 336 City Road, drug and general merchant and commission agent. April 30.
WRIGHT, EDWARD, Durham Street, and 26 Wilson Street East, Middlesbrough, herbalist and grocer. April 26.

SCOTCH SEQUESTRATION.

BISHOP, THOMAS, chemist and druggist, Borrowstounness, as an individual, and also a partner of Bishop & Smellie, seedsmen, Borrowstounness. April 15.

DIVIDENDS.

BRUNJES, MARTIN, 46 Brook Street, Grosvenor Square, Mx., surgeon. Final, of 9d., at W. Edwards, 18 King Street, Cheapside, London, on and after April 29.
GOODFELLOW, WILLIAM RICHARD, Roche, Cornwall, surgeon. First and final, of 1s. 11½d., at T. Chirgwin's, 26 River Street, Truro, on and after April 20.
SMITH, ANTHONY, 69 Queen Street, Hull, manufacturing chemist. First, of 1s. 9d., at Josolyne, Clarke & Co.'s, 28 King Street, Cheapside, London, on and after April 12.

PARTNERSHIIPS DISSOLVED.

AYRTON & SAUNDERS, Duke Street and Parr Street, Liverpool, druggists' sundrymen and fancy box manufacturers. December 31.
BISHOP & MILLER, 19 Brunsbury Street, Islington, chemists and druggists. April 29.
BROTHERS, FRANCIS WILLIAM & Co., Livesey, near Blackburn, chemical manufacturers. April 26.
CHALDECOTT, JARDINE & CHALDECOTT, Dorking and Capel, surgeons. December 31.
GILBERT HINE & Co., 30 Jewry Street, Aldgate, London, auctioneers and chemists' transfer agents. March 23.
HALIFAX HORNHOUND BEER COMPANY, Halifax, horehound beer dealers. April 10, as regards J. Brenley.
HOLBERTON & ARMSTRONG, Hampton and Teddington, surgeons. March 25.
MEADOWS & BUSWELL, Great Yarmouth, surgeons. April 2.
SOUTH BELGRAVIA DISPENSARY FOR DISEASES OF THE THROAT, EAR, AND CHEST, 74 Lupus Street, Pimlico, physicians and surgeons. April 17.

EXCHANGE COLUMN.

TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of THE CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to the "Publisher of THE CHEMIST AND DRUGGIST, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

FOR DISPOSAL.

- Howard's quinine, 12s. 3d.; German, 12s. oz. 14/173
- Twenty pounds English honey, 9d. Hambridge, Chemist, Highworth.
- 4-oz. bottle Howard's sulphate quinine; not opened; what offers? 2/173.
- Several 6 and 12 doz. Burrows' racks for mineral waters. Bray, Chemist, Buntingford.
- A dental chair, nearly new, by Ash & Son, London; a bargain. Particulars sent. 15/173.
- Quantity good wax, very fine colour, price 1s. 2d. per lb., sample free. H. Kemp, Horncastle.
- Dentist's first-class vulcaniser and hand-lathe, cheap. Dongan, 158 Oxford Street, Manchester.
- About 10 gallons commercial nitric acid; 4s. per gallon, or what offer? Rowe, Chemist, Redruth, Cornwall.
- First thirteen parts of "Medicinal Plants," by Bentley and Trilmen, cost 5s. per part, clean, price 50s. 19/174.
- Sixty pounds of good sound cloves, price 70s. cash for the lot, sample sent if desired. G. Kershaw, Hitchin.
- Pharmaceutical Journal*, posted every Monday morning, 7s. 6d. yearly. X. Y. X., 4 Bath Street, Abingdon, Berks.
- Pharmaceutical Journals* from commencement, 37 volumes unbound for any reasonable offer. Martin, Chemist, St. Albans.
- Dentists.—A vulcaniser with flasks and clamps cost 6l. for 3l., equal to new. Walter Smith, 374 Stretford Road, Manchester.
- "How to Write an Essay," 6d.; "Exercises in Arithmetic for Preliminary," 9d. S. T., 28 Camden Street, Islington, London, N.
- A good 24 5-grain pill machine (nearly new), with double rollers. What offers? G. L. Douthwaite, Rhoymedye, Denbighshire.
- Pulv. potas., 25s. tr. in cwt.; sublime. ol. oliva, 6s. gal.; 28 lbs. gum asafetida, 3d. lb. H., 41 Chancery Lane, Ardwick, Manchester.
- Ten-gallon copper still with gauge-tube, tap, &c., and condensing worm in tube, to set in brickwork. Price 4l. A. Deck, Cambridge.
- Nine feet nest of drawers, 1s. per drawer; 140 feet shelving, show carboys, specie jar, plate glass cases. Sale or exchange. C. Sharpe, Madeley, Salop.
- Twelve ozs. quinine sniph. Evans, Sons & Co., 12s. 6d. oz. net. 27/171.
- Soda-water machine (first-class), for hand or steam; new van and bottles. Chemist, 34 High Street, Putney. Would exchange for drugs or patents.
- Offers wanted for 23 lbs. dry iodine, 33 bottles otto of rose, A. F. & K. green label, 2 lbs. Mitcham oil lavender. Cox, Gallowtree Gate, Leicester.
- 3 lbs. each of Gibson's floral gems, chlorodyne and fragrant bouquet lozenges, 22s.; 3 dozen assorted 6d. aniline dyes (Hudson's), 7s. 6d. Allatt, Chemist, Frizington.
- Dows Clark's American aerated water machine, consisting of generator, bottling cylinders, and rack; needs very trifling repair. Thompson & Walton, Maidenhead.
- How's Students' Spectroscope, with bisulphide of carbon prism, only 2l. Students' microscope and lots of accessories, only 4 guineas. Tresh, Chemist, Buxton.
- A pair 3-feet French stones, on iron frame, 14 feet 2 inches shafting, pulley, and band-lag, with or without chaff box. E. Harvey, Commission Agent, Wednesbury.
- For sale, first ten divisions (7s. 6d.) of "Picturesque Europe" (with the remainder as they come out), perfectly clean, quite good as new. What offers? A. P. S., 9 Dover Street, Oxford Street, Manchester.
- Vertical boiler, second-hand, with new horizontal steam engine, about two h.p., with all mountings in working order; 30l. Can be seen at N. G. Wilcocks', 19 Broad Street, Bath.
- About 100 sets of 3 vol. novels, at a low rate; would enable a chemist to start a circulating library, and prove a good and profitable "adjunct." A. R. Awbery, Henley-on-Thames.
- Chemist and Druggist*, from 1861 to 1867, and from 1870 to 1877; also, *Pharmaceutical Journal*, from 1869 to 1877 (a few numbers missing); what offers? Matthews, chemist, Ashby de la Zouch.
- Mahogany-fronted counter, with mahogany top, carved brackets and pilasters, about 22 feet long, 3 feet 2 inches high, 2 feet wide, fitted at the back with 23 drawers, much like Maw's fig. 152, very handsome; to be sold at reasonable price. Apply to Fry, Chemist, Taunton.
- Compact end counter, 3 feet 3 inches long, with three drawers and shelved cupboard, painted, 24s. Spanish mahogany case for front desk, 20s. J. Floyd, Bury St. Edmunds.
- Chambers's "Encyclopaedia," 10 vols., nearly new, 27. 10s., published 4l. 10s.; Miller's "Chemistry," 3 vols., 21s., published 2l. 10s. 6d.; Stockhardt's "Chemistry" 2s. 6d.; small square tincture press, 4s. 6d. Goulden, Uckfield.
- Three hundred pounds fresh ground insect powder, 14 lbs. 1s. lb., 28 11d., 56 10d., 112 9d. cash with order, two stamps for sample 5 comaline restorer, 6 comaline gloss, 1 comaline restorer, 5s. size, 17s. the lot. Lockwood, Chemist, Sheffield.
- Twelve dozen new waterproof Paisley sponge bags, sizes 5 by 6 to 8 by 7 inches, 5s. per dozen assorted; also several gross melin and large teats, 6s. and 9s. 6d. gross. Send stamps for samples to Druggist, 19 Parsonage Place, Lincoln's Inn Fields, London.
- Minor Students.—50 questions asked of a successful candidate at last Minor, 2s.; 30 prescriptions given to dispense at the "Minor" 2s.; 50 illegible prescriptions, 2s. 6d.; 8 mounted indigenous plants, 5s.; Tully's "Postal System" lent to copy, 5s. "Chemist," care of Mr. J. Edwards, London House, Petham, Canterbury.
- Offers wanted in patents, drugs, or cash for 2 gross round tin boxes with lids, 2 inches deep, 2 inches diameter; 1 gross disc 2 inches deep, 1½ inches diameter; quantity moderator, colza oil, and Silber cotton wick; 1 doz. yards omp. roborans on molskin, 16s.; 1 cwt. sape Castile; 1 oz. bottles ol. verbenne. Nicholson, 5 Bailgate, Lincoln.
- Pereira's "Materia Medica," 2 vols., 10s. Cooley's "Practical Receipts," 7s.; "Year-Book Pharmacy," 6 vols., 1870-75, 12s.; "Pharmacopoeia India," 1868, 4s.; Nicholson's "British Encyclopedia," complete, 6 vols., 20s. (published 6l. 6s.); 40 volumes French medical works, many by esteemed authors, for 30s.; Bovin's "Midwifery," 140 plates, 5s. M. Perey, 11 James Street, Haymarket, London, S.W.
- Nest of drawers, window enclosures, glazed cases, shop jars, all sizes and colours, show bottles, specie jars, black store bottles, shelving, and every requisite; also various medical books, surgical instruments; also tobaccoconists handsome show cases, jars, &c.; all cheap to effect a clearance. Handsome vase of satin flowers, price 3l. H. E., 294 Old Kent Road.

[ay 15, 1878.]

Mineral-water manufacturers, chemists, and others.—A 2-horse power combined vertical engine and multitubular boiler, occupies but little space, is a good and economical steam generator, only had a few months' work, and is in every respect equal to new; will be sold at a bargain to effect immediate sale, as it must be removed at once. Can be seen under team by appointment. 26/174.

gent labels for bottles, showing at a glance how to make the reagents required for practical analysis of the Minor, decompositions which occur (expressed by equations), symbolic formulæ, with other useful information for students, 1s. 6d. per set; fifty questions asked of a successful candidate at the last Minor, 2s. Saunders, private tutor, 79 Gaisford Street, N.W.

Chemist and Druggist for 1866, 1871, 1872, 1874, 1875 complete, for 1867, 1868, 1869, 1870, 1873, one number in each lost; *The Pharmaceutical Journal* for 1865, 1866, 1867, 1869, 1873, 1875, 1876 complete; for 1868 and 1871, one lost; 1874, 1877, three lost; 1870, 1876, 1874, 13 lost; also one 2-pint wire covered gazogene, complete; what offers? A. B., Mr. J. Newell, Brentwood.

s. liq. sarzæ, B.P., 6s.; 6 lbs. potass. iodid., 2s.; 30 oz. ferri. citr. c. quina, B.P., 3s. 6d.; 4 lbs. pulv. ereta. arom., B.P., 1s. 1b.; 200 lbs. aloes hepat. opt., 6d. 1b.; 24 oz. quina disulph. Savory's, 12s. 6d. oz.; 3 lbs. pulv. ereta. aromat. c. opio, 3s.; 10 No. 2 flax lint, 1s. 9d.; 60 lbs. ol. earui. ext., 2s. I have the above surplus stock to dispose of. J. Wiggins, Chemist, Ipswich.

plate-glass sponge case, as fig. 90, 4l.; a ditto ditto, as 92, 5l.; an upright case to stand on floor in front of counter, 4 feet long, 3 feet high, marble top, 4l.; a very good desk and glass case, as fig. 21, plate-glass and silvered glass back, 7s.; a quantity of mahogany fronted shelving, 5d. per foot run; a 11-ft. mahogany-top counter; a 12-ft. bent glass counter case, fitted with trays, ebonized mahogany, 8l. 10s. E. Natali, 213 Old Street, E.C.

quantity of Codd's and Sykes Macvay's patent bottles, Codd's carriers, steam syrup pan, silicated carbon cistern filter, and mineral water requisites; upright case as Maw's fig. 38; Avery's platform scales, Coventry "Excelsior" bicycle, never used, 9l.; copying press, never unpacked, scales, Maw's fig. 4, terra cotta gas stove, tincture press, B.P.; vaccination lancet with tubes Maw's fig. 15. McNeil, Chemist, Crewe.

Pharmaceutical Journal, from January, 1852, to June, 1855, bound, 22s.; from July, 1855, to December 29, 1877, unbound, 5l. 12s. 6d., all in excellent condition. *Chemist and Druggist*, July, 1860, to December, 1862, 5s.; May, 1871, to June, 1872, 3s.; July, 1875, to July, 1876, 3s.; August, 1877, to May, 1878 (October missing), 2s. 6d. Registers of Chemists and Druggists for years 1869 to 1877, 18s., or cash offers. Executors late Mr. Colton, Selby.

2-ft. set of fittings, as Maw's fig. 196, mahogany-fronted drawers, shelving, pilasters, and cornice, all newly labelled and glass knobs, equal to new, 18l., a bargain; a very elaborate dispensing screen, glass case at each end, looking-glass centre, with marble slab in front, handsome tablet on top, "Dispensing Department," silvered plate-glass backs to cases, all plate-glass, in first-class condition, 8l. 10s.; a 7-ft. ditto ditto, 9l. E. Natali, 213 Old Street, E.C.

Quantity white teats; small, 3s. 6d., medium, 6s. 6d., gross; sample for stamp. Padwick, Redhill.

Only eight 12-lb. coppers left (new); super essence lemon, 7s. 6d. lb., to clear; two casks Jamaica honey, 47s. 6d. cwt.; eupri sulph. opt., 24s. cwt.; acid acetic, B.P., 28s.; burnt sugar, 38s., perfectly soluble; six cases finest seconds castor oil, 5½d.; finest pale oak varnish, 6s. 6d.; essence pears, 2s. 9d.; pine apple, 3s.; strawberry, 3s.; fol. senna, 4½d.; chlorodyne, 6s. 9d.; pulv. rhei, E.I., 1s. 9d.; chloroform, warranted B.P., 4s.; ether meth., 1s. 2d. Samples two stamps. Sowerby, Chemist, Middlesbrough.

Mahogany desk with shelves, fitted with two drawers and pigeon holes and flap fastened with lock and key 2 feet 3 inches long, 2 feet wide, 27 inches high, carving on top, plate-glass back, 3l. 3s., as fig. 39, Maw's catalogue. Mahogany and plate-glass case, with silvered glass back to open, lined crimson velvet trays, 6 feet long 14 inches wide, and 8 inches high, with plate-glass ends and back, as fig. 16, Maw's catalogue, 5l. 5s. One mahogany case 3 feet 3 inches long, 16 inches high, 6 inches deep, fitted with plate-glass back, and also two smaller ones to match, 18½ inches and 19½ inches long respectively, an offer. A. G. Chamberlain, 3 Market Place, Rugby.

A 9-ft. 4-in. bent plate glass counter case, as fig. 105, 9l. 10s.; a 5-ft. 6-in., as fig. 99, 6l. 10s.; a 5-ft. 9-in., as fig. 96, 5l.; a 3-ft. 10-in., as fig. 101, 4l.; a 4-ft. do. do. do., 85s.; a 3-ft. 6, as fig. 100, 75s.; a 2-ft. 6 and 2-ft. 9, as fig. 16, 40s. each; a plate-glass dispensing screen, as 164, with tablet equal to new, 7l.; a 7-ft. do. do., stout sheet glass, 6l.; a 4-ft. dispensing screen, 75s.; a mahogany dispensing counter and screen, 4-ft. 6 long, 7l.; a 3-ft. mahogany-top dispensing counter, 35s.; a 6-ft. 6 do. do., fitted with drawers, 70s.; a 7-ft. do., 22 drawers, 80s.; several nests of mahogany drawers, from 3 ft. to 12 ft. long, with lockers under, glass knobs, and newly labelled. E. Natali, 213 Old Street, E.C.

A surgeon's cabinet, in first-class condition, 4 ft. wide 5 ft. 10 in. high, 6l., cost 16l.; a quantity of Wedgewood mortars, new, 25 per cent. discount off Maw's list; shop bottles; 18 new 6-lb. blue ointment jars, labelled any name, 4s. each; 24 white ditto ditto 6-lb., 2s. 9d. each; 18 3-lb. blue, 2s. 4d.; 26 1-lb. brown stone japanned covers, 25s. lot; a 48 5-grain pill machine, marble slab, 30s.; 12 6-12 lilac ointment jars, 35s. lot; a very elaborate specie jar, 37in. high, Royal arms, gold cover, equal to new, 90s.; 24 6-lb. jujube jars, labelled, 2s. 9d. each; a quantity of specie jars, fancy jars, as figs. A and D, very cheap E. Natali, 213 Old Street, E.C.

Six ft. long, 7 ft. long, 8 ft. long, 9 ft. long, 10 ft. long, 10 ft. 4 in. long, 12 ft. long, 13 ft. long, nests mahogany-fronted gold-labelled shop drawers, with lockers under, shelving and cornice above, forming complete fittings; 6 ft. 6 in long, 13 ft. long, deal-fronted mahogany-stained French-polished gold-labelled shop drawers, with lockers under, shelving and cornice above, forming complete fittings; 13 mahogany wall cases, with and without cupboards under, all sizes, from 3 ft. to 20 ft. long; 15 mahogany-top counters, all sizes, from 20s. each; 4 solid mahogany-fronted and moulded-top counters; 3 nests counter drawers; 2 mahogany label chests as 26 Maw's; 2 circular marble-top soda-water stands; 33 mahogany counter cases to suit all trades; 5 upright mahogany counter cases, with and without desks; 8 mahogany

dispensing screens, all sizes; mahogany tooth brush case, as 72 Maw's; 18 pear-shape carboys, from 1 gall. to 14 galls.; 950 gold-labelled shop bottles, all sizes; 150 ointment and ext. jars, gold-labelled, all sizes; 3 pill and one pastile machine; eighteen 2-lb. green syr. bottles, labelled, with japan caps; fifty-eight 20 and 32 oz. blue syr. bottles, with plug stoppers; cork press, with root cutter combined; one hundred and thirty 1 gall. upright stock black bottles, with japan and gilt caps, labelled; 10 handsome specie jars, labelled, with gilt covers; fifty 1 and 2-lb. handsome jujube jars, labelled as figs. 1 and 2 Maw's; and every description of utensils required by the trade. Lloyd Rayner, 333 Kingeland Road, London, N.

WANTED.

A "Phoenix" for outside sign. 16/171.

Brass plate for window 10 feet long. 14/171.

The Chemist and Druggist for July, 1874. Kay Brothers, Stockport.

An electric machine; will exchange human skull and cash. 36/171.

Chemist and Druggist for August, 1877. Young, Chemist, Warrington.

"Pharmacographia," clean copy. to purchase. Morrisou, 2 Fen Court, London.

A small set of dental forceps; also a few dozen shop rounds and ointment jars. 6/172.

Pereira's "Selecta e Prescriptis," clean copy. J. B., Mr. Kernshaw, Nevill Street, Southport.

A plate-glass mirror, 4 feet by 3½ feet. State lowest price, &c., to Green, Chemist Swindon.

Proctor's "Pharmacy," in good condition, by Walter Stott, 17 Albermarle Road, Scarborough.

A complete set of fittings for a small chemist's shop. Address, with price and particulars, J. Hill, Wingate, *via* Ferry Hill.

About 100 loose numbers of the *Pharmaceutical Journal*, new series, half price and postage offered for clean copies; apply for list. 15/15.

Chemist's counter, about 8 feet long; also two sets of drawers, one about 7 feet, and one about 4 feet, with or without lockers. A. H. Claypole, York Town, Farnborough Station.

Fittings wanted.—An 8 feet. similar to Maw's 195; 5-feet dispensing screen, as Maw's 167 preferred; also gilt-top species and shop bottles in good condition; state price. 18/171.

Six-gallon show carboy, 60-oz. syrup bottles, with or without stoppers; 40-gall. petroline cistern; small Hancock's mixing machine; small American drug mill. Lowest price to Griffin, Pigott Street, Birmingham.

FORMULÆ.

Formula for sauce, one of the best made, would make a good leading article anywhere, 5s. 14/171.

Furniture paste, very superior, cleans and puts a brilliant gloss on polished or other furniture, &c., 2s. 6d.; baking powder (original), worth 10s., 2s. 6d. The excellence of these preparations secure for them a good sale. Reference or sample post free. H. Hare, 81 South Street, Goole.

Exports of Drugs, Medicines, &c.,

FROM THE PORT OF LONDON,

FOR THE FOUR WEEKS ENDING MAY 1, 1878.

The following list has been compiled from official sources, and is as nearly accurate as it can be made. It professes to record every shipment of the above-named goods in the period defined:—

- W. F. ASHWELL.—Oporto: *Chmcls*, 26*l*.—Port Philip: *Mdens*, 30*l*.—Lisbon: *Mdens*, 82*l*.
- W. ATKINSON.—Hambro: *Chmcls*, 135*l*. *Spices*, 1,350 *lbs*. *Drugs*, 90*l*. *Shellac*, 25 *cs*.—Stettin: *Chmcls*, 25*l*.—Rotterdam: *Drugs*, 13*l*. *Chmcls*, 45*l*. *Cinnamon*, 215 *lbs*.—Antwerp: *Chmcls*, 50*l*.
- C. ATKINS & Co.—Hambo: *Mdens*, 30*l*.—Boulogne: *Peruv. Bark*, 1,407 *cs*. *Chmcls*, 176*l*. *Drugs*, 106*l*. *Mdens*, 59*l*.—Stockholm: *Mdens*, 150*l*.
- ALLPORT & MORGAN.—Port Philip: *Mdens*, 8*l*.
- J. F. ALDRIDGE & Co.—Bombay: *Prfmry*, 19*l*.
- APOLLINARIS Co.—New York: *Mineral Water*, 400*l*.—Adelaide: *Mineral Water*, 16*l*.—Montreal: *Mineral Water*, 275*l*.
- H. AHRENS.—Yokohama: *Chmcls*, 90*l*.—Hiogo: *Chmcls*, 375*l*.
- W. H. ALLEN.—Calcutta: *Prfmry*, 474*l*.
- ALLEN BROS. & Co.—Kurrachee: *Mdens*, 19*l*.
- BISHOP & Co.—Gibraltar: *Prfmry*, 5*l*, 24*l*.—Lisbon: *Prfmry*, 35*l*.
- B. W. BIGGS.—Lisbon: *Chmcls*, 57*l*. *Mdens*, 40*l*. *Opium*, 33*l*. *Drugs*, 74*l*. *Chmel Products*, 12*l*. *Saltpetre*, 22*l*.
- BUDEN, FISHER & Co.—C. G. Hope: *Drugs*, 8*l*. *Mdens*, 52*l*.
- F. W. BERK & Co.—Bremen: *Sulp. Ammonia*, 10 *tons*.—W. H. BROWN.—Rotterdam: *Chmcls*, 65*l*.
- A. BEDRILS.—Tangiers: *Mdens*, 26*l*.—Trinidad: *Chmcls*, 10*l*.
- BAISS BROS. & Co.—Wellington: *Drugs*, 83*l*.—Rio Janeiro: *Drugs*, 21*l*; *Chmcls*, 15*l*.—Yokohama: *Drugs*, 256*l*; *Chmcls*, 221*l*.—Adelaide: *Drugs*, 24*l*; *Chmcls*, 6*l*.—Brisbane: *Drugs*, 83*l*.
- A. G. BILSON.—Rotterdam: *Linseed Oil*, 2,445 *galls*.—Yokohama: *Chmcls*, 222*l*.
- G. BENNETT & SONS.—Valencia: *Chmcls*, 1,880*l*.
- BARRON, SQUIRE & Co.—Calcutta: *Mdens*, 137*l*.—Colombo: *Mdens*, 11*l*; *Madras*: *Mdens*, 33*l*.
- BORNEO Co.—Singapore: *Mdens*, 50*l*.—Calcutta: *Chmel Products*, 88*l*.
- BARRON, HARVEYS & Co.—Cape of Good Hope: *Mdens*, 90*l*.—Adelaide: *Mdens*, 122*l*.
- A. W. BALSTON.—Venice: *Saltpetre*, 195 *cs*.—Bordeaux: *Palm Nut Oil*, 99 *cs*.
- R. BROOKS & Co.—Sydney: *Mdens*, 120*l*; *Chmcls*, 16*l*; *Bottles*, 13*l*.
- F. W. BERK.—Dunkirk: *Chmcls*, 30*l*.
- F. BILOT & Co.—Boulogne: *Prfmry*, 10*l*.
- J. BATT & Co.—Yokohama: *Chmcls*, 75*l*; *Drugs*, 65*l*.
- W. J. BUSH & Co.—Sydney:—*Fruit Essences*, 40*l*; *Tartaric Acid*, 6 *cs*.
- BESLEYS & WILSON.—Hambro: *Iodine*, 2,750*l*.—Bremen: *Iodine*, 119*l*.
- G. BOWEN.—Rotterdam: *Linseed Oil*, 5,040 *galls*.
- E. W. CARLINO.—Brussels:—*Carb. Ammonia*, 28*l*; *Phosphorus*, 29*l*; *Chmcls*, 18*l*.
- A. A. CAMPBELL & Co.—Calcutta: *Mdens*, 86*l*.—Cape of Good Hope: *Chmcls*, 15*l*.
- CHINNERY & JOHNSON.—Calcutta: *Prfmry*, 100*l*.
- W. CAUDERY & Co.—Reval: *Chmcls*, 1,087*l*.—Copenhagen: *Saltpetre*, 32*l*.—Vigo: *Chmcls*, 10*l*.—Odessa: *Chmcls*, 258*l*.—Konigsburg: *Chmcls*, 12*l*.
- CAHLMANN BROS.—Reval: *Mdens*, 90*l*; *Chmcls*, 10*l*.
- T. CUBBIDOE.—Calcutta: *Chloroform*, 25 *lbs*.
- G. F. COWARD & Co.—Calcutta: *Mdens*, 160*l*.
- J. CLENCH & SON.—Adelaide: *Chmcls*, 25*l*.
- F. COUTTS & SON.—Port Philip: *Acetic Acid*, 100*l*.
- COLDWELL, WATSON & Co.—Yokohama: *Chmcls*, 70*l*.—*Drugs*, 25*l*.
- J. CONNELL & Co.—Sydney: *Chmcls*, 72*l*.
- CHAPMAN & Co.—Rotterdam: *Chmcls*, 360*l*.
- COLLEY & Co.—Calcutta: *Mdens*, 6*l*, 30*l*; *Bottles*, 24*l*.
- J. W. COOPER.—Auckland: *Linseed Oil*, 669 *galls*.
- L. S. CARR.—Rio Janiero: *Canary Seed*, 60*l*.—Riga: *Shellac*, 19 *cs*.
- CHRISTOPHERSON & Co.—Amsterdam: *Carb. Ammonia*, 10*l*.—Auckland: *Saltpetre*, 20*l*; *Sulphur*, 20 *cs*.—Montreal: *Saltpetre*, 20 *cs*.
- CHARLES & FOX.—Lisbon: *Chmcls*, 15*l*.
- S. D. CHIPPEROATE.—Jersey: *Chmcls*, 16*l*.
- W. H. COLE & Co.—Antwerp: *Chmcls*, 129*l*; *Drugs*, 19*l*.
- COULTHARD & Co.—Calcutta: *Mdens*, 97*l*.
- W. DUNN & Co.—Algoa Bay: *Chmel Products*, 27*l*.—Hong Kong: *Drugs*, 160*l*.
- J. A. DARE & Co.—Montreal: *Mdens*, 585*l*; *Magnesia*, 23*l*; *Prfmry*, 53*l*; *Drugs*, 3*l*, 225*l*; *Turmeric*, 17 *cs*; *Sassafras*, 12 *cs*; *Gum Arabic*, 21 *cs*; *Canary Seed*, 5 *cs*; *Ginger*, 24 *cs*; *Cassia Lignea*, 2½ *cs*; *Chillies*, 25 *cs*; *Gum Tragacanth*, 1 *cs*; *Cod Liver Oil*, 125 *galls*; *Tapioca*, 311 *lbs*; *Cochineal*, 1,750 *lbs*; *Allspice*, 311 *lbs*; *Senna*, 252 *lbs*.—Brisbane: *Mdens*, 40*l*.
- DAWSON BROS.—Sydney: *Mdens*, 285*l*.—Genoa: *Magnesia*, 7*l*; *Mdens*, 296*l*; *Chmcls*, 2*l*.—Oporto: *Linseed Oil*, 224 *galls*. *Mdens*, 95*l*.—Penang: *Mdens*, 375*l*.—Lisbon: *Mdens*, 215*l*.—Yokohama: *Drugs*, 35*l*.—Calcutta: *Mdens*, 100*l*.—Gibraltar: *Mdens*, 80*l*.—Leghorn: *Mdens*, 10*l*.—Bombay: *Mdens*, 30*l*; *Barbadoes*: *Mdens*, 12*l*.—Madras: *Chmcls*, 8*l*. *Mdens*, 145*l*.—Callao: *Chmcls*, 53*l*.—Port Philip: *Mdens*, 100*l*.—Adelaide: *Mdens*, 170*l*.—Mauritius: *Mdens*, 25*l*.—Brisbane: *Chmcls*, 15*l*.
- R. E. DAVIDSON & Co.—Canaries: *Chmcls*, 22*l*.
- A. DURANT & Co.—Bombay: *Mdens*, 16*l*.—Calcutta: *Mdens*, 5*l*.
- J. H. DART & SON.—Cadiz: *Chmcls*, 124*l*.
- DAVY, YATES & Co.—Demerara: *Mdens*, 334*l*; *Chmcls*, 4*l*.—Jamaica: *Mdens*, 25*l*.—Port Natal: *Mdens*, 100*l*.—St. Nazaire: *Mdens*, 160*l*.
- DAVIS & SOPER.—Cape of Good Hope: *Chmcls*, 4*l*; *Mdens*, 49*l*.
- ESCOMBE BROS. & Co.—Bombay: *Apoth. Wares*, 37*l*; *Mdens*, 107*l*; *Cod Liver Oil*, 8*l*; *Chmcls*, 9*l*; *Cochineal*, 38 *cs*.—Calcutta: *Mdens*, 140*l*; *Soda Water Bottles*, 58*l*.
- ELLIS & Co.—New York: *Cake Alum*, 25 *t*.
- EVANS, LESCHER & Co.—Adelaide: *Mdens*, 33*l*.—Calcutta: *Mdens*, 592*l*; *Chmcls*, 27*l*.—Lima: *Chmcls*, 40*l*.—Naples: *Mdens*, 6*l*.—Calcutta: *Quinine*, 159*l*; *Medical Preparations*, 32*l*; *Mdens*, 257*l*.
- J. ELLIOTT.—Sydney: *Mdens*, 143*l*; *Prfmry*, 30*l*.

H. FAULDING & Co.—Adelaide: *Mdens*, 580*l.*; *Glass* es, 10*l.*; *Chmcl prdcts*, 24*l.*; *Chmcl Drugs*, 22*l.*; *Apoth* s, 9*l.*; *Drugs*, 50*l.*; *Chmcls*, 50*l.*

W. FISHER.—Bremen: *Chmcl prdcts*, 48*l.*; *Chmcls*, 7*l.*; 67*s*, 60*l.*; *Peruv. Bark*, 3 cs.—Hambro: *Chmcls*, 125*l.*; *Drugs*, 3*l.*; *Prfmry*, 46*l.*—Ilbraith: *Chmcls*, 133*l.*—Rotterdam: *Chmcls*, 56*l.*; *Peruv Bark*, 115 cs; *Drugs*, 603*l.*—Barcelona: *Peruv Bark*, 27*l.*; *Drugs* 24*l.*; *Chmcl prdcts*, 119*l.*—Konigsburg: *Chmcls*, 31*l.*; *Drugs*, 7*l.*—Reval: *Chmcls*, 125*l.*; *Drugs*, 12*l.*; *Cineal*, 8 cs.—Dantzic: *Chmcls*, 71*l.*—Copenhagen: *Drugs*, 1*l.*; *Spices*, 1,662 lbs.; *Pfrmy*, 48*l.*—New York: *Chmcls*, 22*l.*; *Valparaiso: Drugs*, 165*l.*; *Spices*, 16*l.*—Antwerp: *Chmcls*, 22*l.*; *Drugs*, 21*l.*—Amsterdam: *Chmcls*, 28*l.*; *Spices*, 1*l.*—Lisbon: *Chmcls*, 8*l.*, 31*l.*; *Drugs*, 55*l.*—Buenos Ayres: *Chmcls*, 18*l.*—Odessa: *Chmcl prdcts*, 27*l.*; *Chmcls*, 26*l.*; 7*s*, 94*l.*—Poti: *Chmcls*, 30*l.*—Stockholm: *Chmcls*, 18*l.*—Montreal: *Chmcls*, 11*l.*

D. FISHER, & Co.—Bombay: *Chmcl prdcts*, 275*l.*; *Chmcls*, 581*l.*—Calcutta: *Chmcl prdcts*, 50*l.*; *Madras: Chmcls*,

ELGATE & Co.—Calcutta: *Prfmry*, 186*l.*

B. FASTENEDGE.—Calcutta: *Chmcls*, 12*l.*; *Mdens*, 409*l.*

LBEBY & KEMP.—Hambro: *Mdens*, 50*l.*

& A. B. FREELAND.—Bathurst: *Chmcls*, 7*l.*—Mauritius: *Chmcl prdcts*, 17*l.*—Colombo: *Chmcls*, 184*l.*—Trinidad: *Chmcls*, 40*l.*

FORSEY.—Bombay: *Mdens*, 21*l.*

FICKLING.—Gothenburg: *Prfmry*, 21*l.*

F. FOX.—Canterbury: *Chmcls*, 3*l.*

FOULGER & SONS.—Algoa Bay: *Chmcl prdcts*, 95*l.*

GREY, JUN.—Hambro: *Citric Acid*, 46*l.*; *Chloride Lime*, *Chmcls*, 115*l.*; *Drugs*, 150*l.*; *Anised Oil*, 195 lbs, *Dantzic: Drugs*, 29 cs; *Senna*, 11*l.*—Genoa: *Drugs*, 9*l.*; *Ammon*, 574 lbs.—Havre: *Castor Oil*, 340*l.*—Rotterdam: *Chmcls*, 16*l.*; *Drugs*, 67*l.*—Stettin: *Drugs*, 35*l.*—Paris: *Tapioca*, 1 cs.—Odessa: *Drugs*, 108*l.*—Venice: *Linseed Oil*, 2 gals.—Konigsburg: *Peruv. Bark*, 4½ cs.—Marseilles: *Drugs*, 11*l.*—Trieste: *Drugs*, 59*l.*—Antwerp: *Linseed Oil*, 7 gals.—Barcelona: *Chmcls*, 14*l.*—Singapore: *Linseed* 1,250 gals.

AUBERT & METCALFE.—Rotterdam: *Peruv. Bark*, 542 cs; *Drugs*, 595 cs.—Hambro: *Chmcls*, 294*l.*; *Drugs*, 13*l.*; *Prfmry*, *Reval: Chmcls*, 305*l.*; *Drugs*, 65*l.*—Copenhagen: *Chmcls*, 70*l.*—Yokohama: *Chmcls*, 175*l.*; *Drugs*, 50*l.*—Montreal: *Chmcl prdcts*, 50*l.*—Barcelona: *Spices*, 400*l.* *Marseilles: Spices*, 169*l.*; *Drugs*, 200*l.*

ELLATLY, HANKEY & Co.—Calcutta: *Chmcls*, 17*l.*; *Mdens*, 1*l.*—Port Philip: *Drugs*, 582*l.*; *Chmcls*, 154*l.*—Zanzibar: *Chmcls*, 54*l.*

F. GERHARDT.—Rouen: *Chmcls*, 380*l.*—New York: *Chmcls*, 689*l.*; *Mdens*, 75*l.*; *Drugs*, 15*l.*

GRAF.—Bremen: *Peruv Bark*, 179 cs.

BRIMWADE, RIDLEY & Co.—Brisbane: *Drugs*, 392*l.*; *Chmcls*, 134*l.*; *Bottles*, 134*l.*; *Chmcl Drugs*, 50*l.*—Auckland: *Drugs*, 4*s*; *Chmcls*, 78*l.*; *Sulphur*, 80 cs; *Bottles*, 165*l.*—Canterbury: *Drugs*, 219*l.*; *Chmcls*, 1,008*l.*—Port Philip: *Bottles*, *Chmcls*, 247*l.*; *Drugs*, 288*l.*; *Linseed Meal*, 59 cs.—Canterbury: *Chmcls*, 371*l.*; *Drugs*, 1,007*l.*; *Bottles*, 300*l.*; *Spices*, 300 cs; *Spices*, 86*l.*

ELLATLY & Co.—Bombay: *Mdens*, 80*l.*

FERRING & Co.—Calcutta: *Mdens*, 376*l.*; *Druggists' Sun-*, 30*l.*—Genoa: *Mdene*, 35*l.*

J. HARVEY.—Amsterdam: *Drugs*, 178*l.*

HARRIS & Co.—Charlottesville Town: *Chmcls*, 52*l.*—Konigsburg: *Castor Oil*, 22 cs.

HARRIS & Co.—Rottordam: *Chmcls*, 55*l.*; *Drugs*, 55*l.*; *Peruv Bark*, 139 cs; *Cocanut Oil*, 43 cs—New York: *Drugs*, 1*l.*—Copenhagen: *Drugs*, 11*l.*—Brussels: *Linseed Oil*, 48 galls.

ONEYCHURCH & Co.—Leghorn: *Prfmry*, 5*l.*; *Drugs*, 295*l.*—Port Philip: *Drugs*, 120*l.*

C. HITCHCOCK.—Bremen: *Ginger*, 14½ cs.—Hambro: *Drugs*, 147*l.* *Ginger*, 40 cs.—Yokohama: *Cod Liver Oil*, 100*l.*—Copenhagen: *Spices*, 2,288 lbs. *Drugs*, 43*l.*—Christiania: *Drugs*, 51*l.* *Spices*, 64 lbs. Gothenburg: *Cochineal*, 1 cs.

HODGKINSON, STEAD & Co.—Malta: *Mdens*, 12*l.*—Mauritius: *Mdens*, 522*l.* *Chmcls*, 41*l.*, 13*l.* *Apoth. Wares*, 22*l.*—Kurrachee: *Chmcls*, 25*l.*

H. HEAD & Co.—Shanghai: *Mdens*, 66*l.*—Bombay: *Mdens*, 400*l.*

HODGKINSON, PRESTONS & Co.—Montreal: *Mdens*, 230*l.* *Chmcls*, 113*l.* *Drugs*, 13*l.*

HARRISON & JERRAM.—Sydney: *Drugs*, 40*l.*

H. & J. HART.—Sydney: *Drugs*, 12*l.*

HODGKINSON, BURTONS & Co.—Montreal: *Drugs*, 79*l.* *Peruv. Bark*, 6 cs. *Spices*, 246*l.*

O. HITZSEHOLD.—Brussels: *Sarsaparilla*, 1 cs.

T. HODGKINSON & Co.—Gothenburg: *Mdens*, 37*l.*

F. HODGSON.—Calcutta: *Quinine*, 500 ozs.

T. HANKEY & Co.—Jamaica: *Chmcls*, 9*l.*

J. HALL (JUN.) & Co.—Lisbon: *Chmcls*, 15*l.*

F. A. HODGKINSON & Co.—Calcutta: *Mdens*, 39*l.*

R. JOHNSON & Co.—Bombay: *Glass Bottles*, 20*l.* *Mdens*, 25*l.*

JOHNSON & SON.—Bombay: *Mdens*, 47*l.*

JONES, SEARLE & Co.—Calcutta: *Mdens*, 87*l.*—Cape of Good Hope: *Mdens*, 56*l.*

JOHNSON & ALLSUP.—Wellington: *Chmcls*, 68*l.*

JONES & Co.—Yokohama: *Mdens*, 204*l.*

JONES, PRICE & Co.—Jeddah: *Drugs*, 65*l.*

E. D. JOYCE.—Calcutta: *Drugs*, 37*l.*; *Prfmry*, 8*l.*

J. M. JONES.—Colombo: *Prfmry*, 9*l.*

T. IRVINE & Co.—New York: *Mdens*, 62*l.*—Brisbane: *Mdens*, 15*l.*—Sydney: *Mdens*, 260*l.*

H. S. KING & Co.—Calcutta: *Drugs*, 99*l.* *Apoth Wares*, 10*l.*—Monte Video: *Chmcls*, 23*l.*

KNIGHT & SON.—Dantzic: *Chmcls*, 50*l.*—St. Petersburg: *Chmcls*, 372*l.*—Reval: *Sal Ammoniac*, 277 cs.

M. KLEEMAN & Co.—St. Petersburg: *Peppermint Water*, 10*l.*

H. KING & Co.—Hong Kong: *Mdens*, 5*l.*

LARKINS & HADLAND.—Brussels: *Mdens*, 148*l.*—Demerara: *Mdens*, 100*l.*—Hambro: *Mdens*, 810*l.*; *Chmcls*, 98*l.*—Lisbon: *Mdens*, 795*l.*—Montreal: *Mdens*, 191*l.*—Port Philip: *Mdens*, 95*l.*—Oporto: *Mdens*, 21*l.*, 77*l.*, 69*l.*—Calcutta: *Mdens*, 266*l.*, 602*l.*—Antwerp: *Chmcls*, 53*l.*

G. LESLIE.—Palermo: *Cinnamon*, 568 lbs.—Rotterdam: *Spices*, 21*l.*

LISNER, HOOPER & Co.—Hambro: *Ammonia*, 154*l.*—Rotterdam: *Sulph Ammonia*, 110*l.*—Bremen: *Sulph Ammonia*, 132*l.*

C. LAVY.—Hambro: *Prfmry*, 9*l.*—Reval: *Prfmry*, 51*l.*

J. LEWIS & Co.—Palermo: *Prfmry*, 33*l.*—Lima: *Mdens*, 25*l.* *Madras: Prfmry*, 113*l.*

LEETE & BAILLON.—New York: *Chmcls*.

J. LEVI & Co.—Canterbury: *Prfmry*, 15*l.*

LAWRENCE, SON & Co.—Adelaide: *Olive Oil*, 292 g als.

J. LYON & Co.—Bombay: *Mdens*, 18*l.*; *Drugs*, 35*l.*

W. LLEWELLYN.—Antwerp: *Cassia lignea*, 1,990 lbs; *Cinnamon*, 200 lbs.

LEDGER, SMITH & Co.—Barcelona: *Cod Liver Oil*, 20*l.*

D. LINDO.—Jamaica: *Mdens*, 14*l.*; *Castor Oil*, 12*l.*

J. LAMB.—Hambro: *Chmcls*, 13*l.*

LYNCH & Co.—New York: *Apoth Wares*, 330*l.*—Bilbao: *Apoth Wares*, 60*l.*—Sydney: *Apoth Wares*, 320*l.*

LAMBERT & MORRISON.—Adolaido: *Mdens*, 10*l.*—Yokohama: *Drugs*, 29*l.*

A. F. LAY.—Lisbon: *Saltpetre*, 20*l.*

LANGTON, EDDEN & Co.—Sydney: *Drugs*, 189*l.*

LAWRENCE, SON & Co.—Adelaide: *Castor Oil*, 30l.; *Muscl Insts*, 36l.

E. A. LEVY & Co.—Sydney: *Chmcls*, 918l.; *Castor Oil*, 675 galls.

S. MAW, SON & THOMPSON.—Adelaide: *Prfmry*, 51l. *Apoth wares*, 63l. *Chmcl products*, 91l. *Glass mnfs*, 17l. *Ginger*, 6l. *Mdcns*, 153l.—Port Natal: *Apoth wares*, 97l. *Mdcns*, 13l. *Drugs*, 15l.—Yokohama: *Apoth wares*, 144l. *Lisbon*: *Mdcns*, 8l.—Sydney: *Apoth wares*, 63l. *Marseilles*: *Apoth wares*, 12l.—Algoa Bay: *Chmcls*, 25l. *Mdcns*, 32l. *Chmcl products*, 25l.—New York: *Apoth wares*, 134l. *Prfmry*, 89l.

J. T. MORTON.—Sydney: *Olive Oil*, 235 galls. *Chmcls*, 318l. *Almonds*, 31l. *Drugs*, 24l.—Brisbane: *Chmcls*, 13l. *Drugs*, 17l.—St. John: *Drugs*, 15l. *Spices*, 30l.—Auckland: *Spices*, 10l. *Drugs*, 19l. *Chmcls*, 70l. *Belize*: *Drugs*, 5l. *Spices*, 16l.—Port Natal: *Drugs*, 10l.—Otago: *Mdcns*, 44l.—Colombo: *Drugs*, 9l., 5l. *Olive Oil*, 60 galls.—Algoa Bay: *Drugs*, 11l. *Chmcls*, 12l.—Bombay: *Drugs*, 62l.

T. MEADOWS & Co.—Madeira: *Prfmry*, 12l.

MCCABE & Co.—Calcutta: *Mdel Drugs*, 66l.

H. MADAM & Co.—Bombay: *Prfmry* 35l.

W. MATHER.—Malt: *Mdcns*, 50l. *Prfmry*, 13l.—Port Philip: *Bottles*, 122l.—Montreal: *Mdcns*, 8l.

T. MCCOMAS & Co.—Sydney: *Glucose*, 200 cs.

R. MARTIN & Co.—Colombo: *Mdcns*, 11l.; *Chmcls*, 12l.

MORRIS, HART & Co.—Brisbane: *Prfmry*, 50l.

J. MORRISON & Co.—Hong Kong: *Mdcns*, 14l.

NIXON & KING.—Port Philip: *Mdcns*, 10l.

NOLLEN, HENRY & Co.—Boulogne: *Peruv. Bark*, 9,835 cs.—Rio Janeiro: *Prfmry*, 12l.—Sydney: *Prfmry*, 14l.

NORTHCOTT & SONS.—Antwerp: *Sal Ammonia*, 106 cs.; *Carb Ammonia*, 103 cs.

E. NEWMAN.—Corunna: *Refnd Saltpetre*, 33l.

W. B. NIND.—Oporto: *Chmcls*, 13l.

W. NICHOLSON & Co.—Calcutta: *Mdcns*, 54l.

NEGRETTI & ZAMBRA.—Yokohama: *Chmcls*, 300l.; *Drugs*, 60l.

OAKES & SON.—Madras: *Mdcns*, 25l.

PRICE, BOUSTEAD & Co.—Colombo: *Prfmry*, 22l.; *Mdel preparations*, 69l.

J. PENNY.—Amsterdam: *Gum*, 33l.—Stettin: *Chmcls*, 34l.—Riga: *Chmcls*, 11l.—Dantzic: *Chmcls*, 32l.—St. Petersburg: *Cochinea*¹, 21 cs.—Christiania: *Drugs*, 23l.—Brussels: *Chmcls*, 21l.; *Drugs*, 29l.—Paris: *Chmcls*, 144l.; *Drugs*, 1,008l.—Gothenburg: *Drugs*, 40l.

G. H. PENNY.—Amsterdam: *Drugs*, 140l.

POKORNY, FIELDER & Co.—Dunkirk: *Chmcls*, 45l.—Genoa: *Chmcls*, 10l.—Le Treport: *Chmcls*, 175l.—Rotterdam: *Chmcls*, 1,221l.; *Drugs*, 35l.; *Opium*, 280 lbs.—Genoa: *Chmcls*, 24l.—Hambro: *Chmcls*, 12l.

PHILLIPS & GRAVES.—Rotterdam: *Chmcls*, 230l.—Hambro: *Drugs*, 24l.—Seville: *Peruv. Bark*, 4 cs.—Riga: *Cocoa Nut Oil*, 509 cs.

P. & O. S. N. Co.—Shanghai: *Mdcns*, 25l.

PONS & Co.—Valencia: *Saltpetre*, 25 cs.

W. S. PARTRIDGE & Co.—Colombo: *Mdcns*, 385l.

B. C. W. PATERSON.—Gothenburg: *Chmcls*, 36l.

J. P. PLATT & Co.—Calcutta: *Mdcns*, 38l.

T. PURVIS.—Port Philip: *Chmcls*, 298l. *Bottles*, 345l. *Mdcns*, 1,312l.

E. S. PAUL.—Shanghai: *Chmcls*, 384l.

R. ROBERTSON.—Barbados: *Glass Bottles*, 12l.

H. ROGERS, SON & Co.—Rio de Janeiro: *Saltpetre*, 170 cs. *Linseed Oil*, 818 galls.

A. RITTER & Co.—Gonoa: *Cassia Lignea*, 19,958 lbs. *Cloves*, 4,036 lbs.

A. REY & Bros.—Barcelona: *Linseed Oil*, 2,550 galls.

P. RORAT.—Cape of Good Hope: *Prfmry*, 58l.

SAVAGE & HILL.—Algoa Bay: *Mdcns*, 22l.—Port Natal: *Chmcls*, 30l.

W. H. SAMPSON.—Copenhagen: *Drugs*, 80l.—Gothenburg: *Drugs*, 69l.

C. J. SALMON.—Harlingen: *Prfmry*, 11l.—Hambro: *Prfmry*, 43l.

D. STORER & SON.—Rio Grande do Sul: *Linseed Oil*, 239 galls.—Cape of Good Hope: *Linseed Oil*, 150 galls.

F. SMITH.—Rotterdam: *Chmcls*, 182l.—Hambro: *Chmcls*, 127l.—St. Petersburg: *Chmcls*, 378l.

SMITH, SUNDIUS & Co.—New York: *Mdcns*, 43l.; *Prfmry*, 37l.

N. SMITH.—Hambro: *Cochineal*, 3 cs.—Stockholm: *Cochineal*, 9½ cs.

D. STORER & SON.—Bombay: *Chmcls*, 48l.

N. STAVELEY.—Oporto: *Prfmry*, 13l.

J. SALA & Co.—Madrid: *Peruv. Bark*, 158 lbs.; *Gum Benjamin*, 2 cs.

STIEBEL BROS.—New York: *Perna Bark*, 8½ cs.

H. H. SMITH & Co.—Yokohama: *Mdcns*, 230l.

SADBROOK, LUNG & Co.—Ghent: *Drugs*, 20l.—Rotterdam: *Spices*, 10l.; *Cinnamon*, 800 lbs.

SCOTNEY & EARNSHAW.—Quebec: *Spices*, 620l.—Brisbane: *Prfmry*, 24l.—Yokohama: *Chmcls*, 300l.

A. SHARPE.—Mauritius: *Prfmry*, 39l.; *Carb Ammonia*, 15l.

SOUTHERN, QUILTY & Co.—Bombay: *Mdcns*, 12l.

W. SNELOROVE.—Gibraltar: *Mdcns*, 38l.

SHORT, SHORT & Co.—Madras: *Mdcns*, 41l.; *Chmcls*, 12l.; *Prfmry*, 9l.—Singapore: *Chmcls*, 73l.

J. TARRY.—Yokohama: *Chmcls*, 417l.; *Drugs*, 145l.

W. TOMLINSON.—Calcutta: *Chloroform* (10 lbs).

TOLMURST & SONS.—St. John's: *Chmcls*, 38l.

TREACHERS & Co.—Bombay: *Drugs* 25l.

J. D. E. TARR.—Sydney: *Bottles*, 122l.; *Mdcns*, 260l.

D. TAYLOR & SON.—New York: *Chmcls*, 136l.; *Mdcns*, 23l.; *Drugs*, 321l.; *Chmcl products*, 121l.

H. TARBUTT.—Trinidad: *Mdcns*, 110l.

F. TALLACK.—Buenos Ayres: *Chmcls*, 16l.; *Mdcns*, 35l.—Adelaide: *Chmcls*, 315l.—Rio Grande: *Mdcns*, 63l.—Callao: *Chmcls*, 42l.—Singapore: *Mdcns*, 63l.—Hong Kong: *Mdcns*, 66l.; *Tangiers*: *Mdcns*, 12l.—Mauritius: *Mdcns*, 35l.—Yokohama: *Mdcns*, 123l.

W. THACKER & Co.—Calcutta: *Mdcns*, 35l.

R. TUCKER & Co.—Bermuda: *Mdcns*, 27l.

C. TENNANT, SONS & Co.—Trinidad: *Sulph. Ammonia*, 298 cs.

R. D. TAYLOR.—Gothenburg: *Drugs*, 32l.—Hambro: *Drugs*, 122l.

TILBROOK, UPTON & Co.—Algoa Bay: *Mdcns*, 13l.

TAITE & CARLTON.—Antwerp: *Petroleum Oil*, 11 tons.

H. VON RON & Co.—Algoa Bay: *Sulph. Acid*, 11l.

J. VAN HANLEN.—Rotterdam: *Peruv. Bark*, 35 cs.

UNION LIGHTERAGE Co.—Bombay: *Mdcns*, 58l.

VIROOR, SON & Co.—Adelaide: *Mdel. Instruments*, 200l.

J. VOSS & Co.—Adelaide: *Mdcns*, 18l.

J. WYMAN.—Rio Janeiro: *Mdcns*, 513l.; *Bottles*, 13l. *Chmcls*, 221l.

A. F. WHITE & Co.—Santander: *Drugs*, 27l.—Port Philip: *Drugs*, 115l.—Bremen: *Mdel. Drugs*, 70l.—Leghorn: *Drugs*, 53l.—Montreal: *Drugs*, 35l.; *Chmcls*, 20l.—Nassau: *Drugs*, 30l.—Christiania: *Drugs*, 20l.—Otago: *Bottles*, 32l.

WEBSTER, STEEL & Co.—Port Natal: *Chmcls*, 27*l*.

G. WARD & SON.—Hambro: *Chmcls*, 13*l*.; *Drugs*, 12*l*.—*Antwerp*: *Cinnamon*, 490 *lbs*; *Spices*, 1,712 *lbs*.—*Bordeaux*: *Drugs*, 28*l*.—*Marseilles*: *Drugs*, 12*l*.—*St. Petersburg*: *Gum Arabic*, 20 *cs*; *Gum Arabic*, 89 *cs*.—*Shanghai*: *Drugs*, 9*l*.—*Amsterdam*: *Drugs*, 637*l*.—*Mauritius*: *Mdcs*, 11*l*.—*Genoa*: *Truv. Bark*, 13*l*.; *Spice*, 19*l*.

D. W. WRIGHT.—Lisbon: *Chmcls*, 11*l*.; *Saltpetre*, 45 *cs*.

WENMAN & Co.—Poti: *Chmcls*, 35*l*.

G. W. WATKING.—Shanghai: *Mdcs*, 16*l*.

WATTS & Co.—Hambro: *Gum Copal*, 23 *cs*.

J. W. WATKINS.—Zanzibar: *Chmcls*, 53*l*.

WRIGHTSON & SON.—New York: *Gum Kowrie*, 550 *cs*; *Gum Olibanum*, 47 *cs*.

WALKER BROS. & Co.—Colombo: *Mdcs* 8*l*.

J. M. WIMBLE.—Carthage: *Drugs*, 9*l*.

T. H. WILLIAMS.—Bombay: *Mdcs*, 64*l*.

ZEDEN & Co.—Oporto: *Chmcls*, 18*l*.



THE general commerce of April, as registered by the Board of Trade, seemed to indicate a fair improvement. The declared value of the exports of British and Irish produce, &c., last month, amounted to 16,327,059*l*. against 15,206,577*l*. in April last year, exhibiting an excess of 1,120,482*l*., and although somewhat important abatement must be made from this extension, on account of April this year containing one working day more than the corresponding month in 1877, a moderate increase undoubtedly took place. The exports of the first four months of 1878 are 936,355*l*. more than in the same period last year, and 2,902,608*l*. less than in 1876, as shown by the following totals:—Four months ended April, 1878, 63,403,687*l*.; 1877, 2,467,332*l*.; 1876, 66,306,295*l*.

Chemical products seem to have showed in the improvement; but the demand is certainly not yet strong enough to influence prices. Throughout the market there is a general weakness, and large buyers are courted by producers with a persistence to which they have not been accustomed. The consequence is that, in most of the leading articles, there is a still further decline to be reported. Whether the demand, which has been witnessed during the past month, has been for genuine trade, or whether the present very low rates have not tempted speculation, is at least open to question. But what is certain is that many transactions occur at figures which make profit impossible, and which are only looked upon as temporary expedients for keeping stock within something like reasonable limits.

Bleaching powder is 5*s*. per ton lower than last month, and is now to be had at 5*l*. 15*s*. Soda ash and crystals have both been bought with some freedom, but at lower prices than ever; and only a tempting offer will secure orders. Oxalic acid is still nominally 5*d*., but the discount is so elastic that it may fairly be represented as 4½*d*. Citric acid has slightly lost ground, and can be bought at 2*s*. 2*d*. Tartaric has been dull at 1*s*. 4½*d*. and 1*s*. 4½*d*.

Mercury has lost 2*s*. 6*d*. since our last, and is now to be bought for 7*l*. even per bottle. It would appear that the Californian competition is at any rate affecting foreign markets.

The iodine makers have agreed between themselves, and have advanced their quotations to 1*s*. per ounce, at which figure the product now stands. There is not much hope of an early fall, and we see nothing but their own moderation to prevent a considerably further rise; but the article is too dangerous to meddle with unless some direct information can be obtained. A rise in price means an immediate diminution of consumption, and this causes discontent among makers, who would gladly both eat their cake and have it. The result may easily be a break in the "ring." Of course, iodides have followed the rise in this chemical.

The more peaceful aspect of public affairs has reduced the price of quinine, which is now purchasable at 13*s*. or 13*s*. 8*d*. for Howard's. The bark arrivals of late have ruled rather lower in quality, and makers not being quite so pressed as on former sales, prices have slightly given way. Fair supplies are said to be en route.

Castor oil still sells at strong prices, but good supplies are now coming in, and a slight reaction may soon be expected.

The attempt to force up the price of opium on imaginary reports about the next year's crops has been only to a very small extent successful. The quotations are about 1*s*. to 1*s*. 6*d*. per lb. higher.

Oil of anise is a trifle higher; oil of cassia has declined 3*d*. per lb., and oil of cloves, in consequence of the introduction of the Excelsior brand, to which we referred last month, has been reduced 6*d*. by the old-fashioned makers.

Speculators have taken advantage of the present low price of shellac, and some active buying has occasioned an advance of about 5*s*. per cwt.

Saffron is dearer, and some scarcity in this article seems to be apprehended.

Musk has been in a difficult position to report upon. On one day the absence of a sufficient supply caused almost a panic and a speculative demand occurred at once. Some parcels arrived a day or two later, and by that time they were not wanted, and the price ran much in its ordinary course.

OILS.—Linseed has been steady through the month, and has been selling at 27*l*., but closes rather duller. Rape has been a very weak market through the month, and is 1*l*. lower than a month ago. Alarmists reports of the Italian crops of olives are as regular as the seasons themselves, but notwithstanding these there seems quite sufficient oil in London to supply all our requirements, and consequently the market stays hoary. Palm oil has a tendency to decline in value. Turpentine is a shade stronger for American spirits. Petroleum keeps remarkably steady. The market is active, but the supply well balances the demand. The seed trade has been busy for the past month or two, but there is nothing noticeable in that market except a moderate rise in the value of canary seed.

MUSHROOMS IN EXCHANGE FOR EGGS.—A late number of the *Journal of Medical Sciences*, of Venice, gives the following account of a curious method in use in Germany for promoting the fecundity of hens:—"In Germany, and more especially in the principality of Nassau, a particular alimentation is adopted to render hens more fecund during winter and those periods when they ordinarily lay but few eggs. All the edible fungi are gathered, dried, and reduced to powder; capsules of linseed are then ground, and one kilogramme of this is mixed with two of rye or wheat flour and half a kilogramme of powdered acorns. To this a half kilogramme of the powdered mushroom is added, with sufficient water to form a paste, which is made into small pellets the size of a pea and given to the hens to eat."

Monthly Price Current.

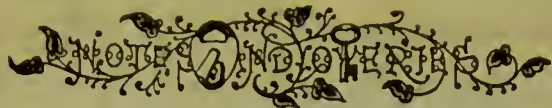
The prices quoted in the following list are those actually obtained in Mining Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

CHEMICALS.				1877.			
1878.							
ACIDS—							
Acetic	per lb.	0 2½ to	0 0	0 3½ to	0 0		
Citric		2 2 ..	0 0	2 5 ..	2 7½		
Hydrochloric	per cwt.	5 0 ..	7 0	4 0 ..	7 0		
Nitric	per lb.	0 4½ ..	0 0	0 4½ ..	0 0		
Oxalic	"	0 4½ ..	0 4½	0 5 ..	0 0		
Sulphuric	"	0 0½ ..	0 1	0 0½ ..	0 1		
Tartaric crystal. ..	"	1 4½ ..	1 4½	1 5½ ..	0 0		
powdered ..	"	1 4½ ..	1 4½	1 5½ ..	0 0		
ANTIMONY ore	per ton	240 0 ..	300 0	240 0 ..	330 0		
crude ..	per cwt.	37 0 ..	0 0	0 0 ..	0 0		
star	"	50 0 ..	0 0	54 0 ..	0 0		
ARSENIC, lump	"	26 0 ..	0 0	26 0 ..	26 6		
powder ..	"	8 9 ..	9 3	9 3 ..	10 0		
BRIMSTONE, rough ..	per ton	110 0 ..	115 0	115 0 ..	120 0		
roll ..	per cwt.	9 0 ..	10 0	9 9 ..	10 0		
flour ..	"	11 0 ..	13 6	11 9 ..	14 0		
IODINE, dry	per oz.	1 0 ..	0 0	0 10½ ..	0 0		
IVORY BLACK, dry ..	per cwt.	8 6 ..	0 0	8 6 ..	0 0		
MAGNESIA, calcined ..	per lb.	1 10 ..	0 0	1 10 ..	0 0		
MERCURY	per bottle	140 0 ..	0 0	145 0 ..	0 0		
MINIUM, red	per cwt.	19 9 ..	0 0	23 3 ..	24 3		
orange ..	"	31 6 ..	0 0	35 0 ..	35 6		
PRECIPITATE, red ..	per lb.	3 6 ..	0 0	3 9 ..	0 0		
white ..	"	3 5 ..	0 0	3 8 ..	0 0		
PRUSSIAN BLUE ..	"	0 0 ..	0 0	0 0 ..	0 0		
SALTS—							
Alum	per ton	130 0 ..	135 0	145 0 ..	150 0		
powder	"	150 0 ..	0 0	157 6 ..	160 0		
Ammonia:							
Carbonate	per lb.	0 6½ ..	0 6½	0 5 ..	0 5½		
Hydrochlorate, crude,							
white	per ton	580 0 ..	720 0	560 0 ..	670 0		
British (see Sal Am.)							
Sulphate	per ton	405 0 ..	410 0	375 0 ..	380 0		
Argol, Cape	per cwt.	75 0 ..	92 0	73 0 ..	80 0		
Red	"	58 0 ..	70 0	57 0 ..	70 0		
Oporto, red ..	"	32 6 ..	33 0	0 0 ..	0 0		
Sicily ..	"	60 0 ..	65 0	0 0 ..	0 0		
Ashes (see Potash and Soda)							
Bleaching powd. ..	per cwt.	5 9 ..	0 0	6 6 ..	0 0		
Borax, crude	"	27 0 ..	33 0	30 0 ..	40 0		
British refined ..	"	35 0 ..	0 0	38 0 ..	40 0		
Calomel	per lb.	3 1 ..	0 0	3 4 ..	0 0		
Copper:							
Sulphate	per cwt.	19 0 ..	0 0	21 9 ..	22 0		
Copperas, green ..	per ton	50 0 ..	55 0	60 0 ..	65 0		
Corrosive Sublimate p. lb.		2 7 ..	0 0	3 1 ..	0 0		
Cr. Tartar, French, p. cwt.		98 6 ..	99 0	97 0 ..	0 0		
brown ..	"	0 0 ..	0 0	90 0 ..	0 0		
Epsom Salts	per cwt.	4 3 ..	6 0	4 9 ..	5 6		
Glauber Salts	"	3 0 ..	4 6	3 6 ..	4 6		
Lime:							
Acetate, white, per cwt.		11 0 ..	20 0	11 0 ..	20 0		
Magnesia: Carbonate ..	"	47 6 ..	0 0	47 6 ..	0 0		
Potash:							
Bicarbonate	per lb.	0 3½ ..	0 0	0 4½ ..	0 0		
Carbonate:							
Potashes, Canada, 1st							
sort	per cwt.	24 6 ..	0 0	24 9 ..	0 0		
Pearlashes, Canada, 1st							
sort	per cwt.	32 0 ..	0 0	37 6 ..	0 0		
Chlorate	per lb.	0 7½ ..	0 0	0 9 ..	0 9½		
Prussiate	"	0 10 ..	0 10½	0 11 ..	0 11½		
red ..	"	1 8 ..	1 9	2 1 ..	2 2		
Tartrate (see Argol and Cream of Tartar)							
Potassium:							
Bromide	"	2 2 ..	0 0	0 0 ..	0 0		
Chloride	per cwt.	6 6 ..	0 0	0 0 ..	0 0		
Iodide	per lb.	15 0 ..	15 6	13 0 ..	13 6		
Quinine:							
Sulphate, British, in							
bottles	per oz.	13 8 ..	0 0	16 0 ..	0 0		
Sulphate, French ..	"	13 0 ..	0 0	16 0 ..	0 0		
Sal Acetos	per lb.	0 7 ..	0 0	0 7½ ..	0 8		
Sal Ammoniac, Brit. cwt.		42 0 ..	43 0	44 0 ..	45 0		
Saltpetre:							
Bengal, 6 per cent. or							
under	per cwt.	21 3 ..	21 9	24 6 ..	25 6		
Bengal, over 6 per cent.							
per cwt.		20 3 ..	21 0	20 3 ..	21 0		
British, refined ..	"	25 6 ..	27 0	28 6 ..	30 0		
Soda: Bicarbonate, p. cwt.		10 0 ..	0 0	10 6 ..	10 9		
Carbonate:							
Soda Ash	per deg.	0 1½ ..	0 0	0 1½ ..	0 1½		
Soda Crystals per ton		72 6 ..	75 0	77 6 ..	0 0		
Hyposulphite, per cwt.		0 0 ..	0 0	0 0 ..	0 0		
Nitrate	"	16 0 ..	16 3	13 0 ..	13 6		
SUGAR OF LEAD, Whitecwt.		35 0 ..	0 0	37 6 ..	38 0		
Brown, cwt.		26 6 ..	0 0	27 0 ..	0 0		
SULPHUR (see Brimstone)							

1878.					1877.						
	s.	d.		s.	d.		s.	d.		s.	d.
VERMOREL	per lb.	1	1	to	1	5				1	5
VERMILION, English ..	"	2	8	..	0	0				3	0
China ..	"	2	5	..	0	0				2	9
DRUGS.											
ALOE, Hepatic	per cwt.	80	0	..	180	0				70	0
Socotrine ..	"	85	0	..	200	0				65	0
Cape, good ..	"	43	0	..	44	0				49	0
Inferior ..	"	35	0	..	42	0				41	0
Barbadoes ..	"	40	0	..	160	0				47	6
AMBERGRIS, grey	oz.	80	0	..	90	0				70	0
BALSAM—											
Canada	per lb.	0	9	..	1	2				1	1
Capivi	"	1	5	..	1	6½				1	9
Peru	"	4	9	..	0	0				5	0
Tolu	"	3	0	..	3	3				7	0
BARKS—											
Canella alba	per cwt.	18	0	..	22	0				21	0
Cascarilla	"	16	6	..	23	0				17	0
Peru, crown & grey per lb.		1	0	..	2	10				1	8
Calisaya, flat ..	"	2	6	..	4	6				2	6
" quill ..	"	4	3	..	8	0				2	6
Carthagena ..	"	1	5	..	3	9				5	0
Columbian ..	"	1	6	..	6	9				2	0
E. I.	"	1	3	..	4	10				1	6
" good & fine ..	"	5	0	..	12	7				5	6
Pitayo	"	0	6	..	1	6				0	0
Red	"	3	3	..	9	0				1	10
Buchu Leaves	"	0	2½	..	0	3				0	3
CAMPOR, China	per cwt.	77	6	..	0	0				90	0
Japan ..	"	82	6	..	0	0				97	6
Refin. Eng. per lb.		1	1½	..	0	0				1	2½
CANTHARIDES	"	2	2	..	5	0				3	2
CHAMOMILE FLOWERS p. cwt.		50	0	..	200	0				75	0
CASTOREUM	per lb.	9	0	..	30	0				9	0
DRAGON'S BLOOD, lp. p. cwt.		100	0	..	280	0				100	0
FRUITS AND SEEDS (see also Seeds and Spices).											
Anise, China Star per cwt.		75	0	..	80	0				92	0
Spanish, &c. ..	"	34	0	..	50	0				30	0
Beans, Tonquin	per lb.	1	9	..	5	0				1	9
Cardamoms, Malabar											
good	"	5	0	..	6	3				3	7
inferior ..	"	1	9	..	4	10				0	10
Aleppy	"	2	0	..	5	6				2	8
Madras ..	"	2	8	..	4	6				2	0
Ceylon	"	4	6	..	5	0				3	6
Cassia Fistula	per cwt.	80	0	..	89	0				10	0
Castor Seeds	"	0	0	..	0	0				5	0
Cocculus Indicus ..	"	7	9	..	10	0				9	0
Colocynt, apple ..	per lb.	1	0	..	1	9				0	0
Croton Seeds	per cwt.	26	0	..	31	0				30	0
Cubebs	"	32	0	..	35	0				27	0
Gummin	"	20	0	..	35	0				11	0
Dividivi	"	12	0	..	16	0				12	6
Fenugreek	"	6	0	..	12	0				8	0
Guinea Grains ..	"	0	0	..	0	0				0	0
Juniper Berries ..	"	6	6	..	9	0				8	0
Nux Vomica ...	"	9	6	..	13	0				8	9
Tamarinds, East India ..	"	12	0	..	19	0				10	0
West India ..	"	21	0	..	26	0				10	0
Vanilla, large	per lb.	20	0	..	27	0				20	0
inferior ..	"	15	0	..	19	0				12	0
GINGER, Preserved, per lb.		0	5	..	0	7				0	4
HONEY, Chili	per cwt.	30	0	..	50	0				43	0
Jamaica ..	"	35	0	..	41	0				39	0
Australian ..	"	0	0	..	0	0				0	0
IPECACUANHA	per lb.	5	2	..	5	7				5	3
ISINGLASS, Brazil ..	"	2	9	..	4	9				2	6
Tongue sort ..	"	3	8	..	5	6				3	2
East India ..	"	1	7	..	5	0				2	0
West India ..	"	3	8	..	4	6				4	0
Russ, long staple ..	"	8	0	..	15	0				8	0
" inferior ..	"	0	0	..	0	0				0	0
" Simovia ..	"	1	6	..	3	0				2	0
JALAP, good	"	0	9	..	0	11				0	10
infer. & stems ..	"	0	7	..	0	8				0	9
LEMON JUICE	per degree	0	1	..	0	1½				0	1
LIME JUICE	per gall.	0	0	..	0	0				1	3
LIQUORICE, Spanish per cwt.		34	0	..	39	0				34	0
Liquorice Root ..	"	0	0	..	0	0				12	0
MANNA, flaky	per lb.	3	6	..	4	0				5	6
small	"	1	4	..	1	6				1	6
MUSK, Pod	per oz.	21	0	..	62	0				13	6
Grain	"	20	0	..	55	0				36	0
OILS (see also separate list)											
Almond, expressed per lb.		1	9	..	0	0				1	4
Castor, 1st pale ..	"	0	5½	..	0	5½				0	4½
second	"	0	5	..	0	5½				0	3½
Cod Liver	per gall.	3	11	..	5	3				4	6
Croton	per oz.	0	2½	..	0	2½				0	2½
Essential Oils:											
Almond	per lb.	25	0	..	0	0				20	0
Aulseed	"	7	0	..	7	2				6	3
Bay	per cwt.	0	0	..	0	0				65	0
Bergamot	per lb.	10	0	..	15	0				10	0
Cajuput	per bottle	3	0	..	3	6				3	0
Caraway	per lb.	9	0	..	9	3				9	0
Cassia	"	2	9	..	0	0				3	10
Cinnamon	per oz.	4	3	..	5	6				6	6
Cinnamou-leaf ..	"	0	1½	..	0	2				0	1½
Citronelle	"	0	2½	..	0	0				0	2
Clovo	"	7	6	..	0	0				8	9
Juniper	"	0	0	..	0	0				0	0
Lavender	per lb.	1	8	..	7	0				1	8
Lemon	"	5	0	..	8	6				7	0
Peppermint	per oz.	0	2½	..	0	0				0	2½

1878.				1877.				
Essential Oils, continued:—								
	s.	d.		s.	d.		s.	d.
Neroli	per oz.	3 0	to 6 6	3 0	to 6 6		3 0	to 6 6
Nutmeg	"	0 4	.. 0 4½	0 6½	.. 0 6½		0 6½	.. 0 6½
Orange	per lb.	4 3	.. 7 0	6 0	.. 9 0		6 0	.. 9 0
Otto of Roses	per oz.	35 0	.. 44 0	13 0	.. 25 0		13 0	.. 25 0
Patchouli	"	1 6	.. 3 0	2 0	.. 3 6		2 0	.. 3 6
Peppermint:								
American	per lb.	10 9	.. 12 6	13 0	.. 14 3		13 0	.. 14 3
English	"	24 0	.. 25 0	34 0	.. 35 0		34 0	.. 35 0
Rosemary	"	2 0	.. 2 6	2 0	.. 2 6		2 0	.. 2 6
Sassafras	"	2 3	.. 2 5	2 3	.. 2 6		2 3	.. 2 6
Spearmint	"	12 0	.. 15 0	12 0	.. 15 0		12 0	.. 15 0
Thyme	"	0 0	.. 0 0	0 0	.. 0 0		0 0	.. 0 0
Mace, expressed	per oz.	0 6	.. 0 10	0 6	.. 0 10		0 6	.. 0 10
PIPIUM, Turkey	per lb.	16 6	.. 17 6	21 0	.. 22 6		21 0	.. 22 6
inferior	"	10 0	.. 12 0	10 0	.. 18 0		10 0	.. 18 0
GUASSIA (bitterwood)	per ton	100 0	.. 130 0	100 0	.. 140 0		100 0	.. 140 0
CHUBARR, China, good and								
fine	per lb.	1 6	.. 4 1	2 5	.. 4 0		2 5	.. 4 0
Mid. to ord.	"	0 6	.. 1 4	0 8	.. 1 4		0 8	.. 1 4
Dutch Trimmed.	"	0 0	.. 0 0	0 0	.. 0 0		0 0	.. 0 0
ROOTS—Calumba	per cwt.	19 0	.. 51 0	32 0	.. 36 0		32 0	.. 36 0
China	"	25 0	.. 30 0	30 0	.. 32 0		30 0	.. 32 0
Chiretta	per lb.	0 3	.. 0 4	0 0	.. 0 0		0 0	.. 0 0
Galangal	per cwt.	21 0	.. 22 0	24 0	.. 26 0		24 0	.. 26 0
Gentian	"	19 0	.. 21 0	22 0	.. 24 0		22 0	.. 24 0
Hellebore	"	0 0	.. 0 0	0 0	.. 0 0		0 0	.. 0 0
Orris	"	55 0	.. 65 0	26 0	.. 75 0		26 0	.. 75 0
Pellitory	"	70 0	.. 76 0	70 0	.. 76 0		70 0	.. 76 0
Pink	per lb.	0 0	.. 0 0	0 0	.. 0 0		0 0	.. 0 0
Rhatany	"	0 4	.. 0 7	0 4	.. 1 0		0 4	.. 1 0
Seneca	"	2 11	.. 3 0	3 6	.. 4 0		3 6	.. 4 0
Snake	"	0 10	.. 1 0	0 6	.. 0 7		0 6	.. 0 7
SAFFRON, Spanish	"	20 0	.. 35 0	33 0	.. 37 0		33 0	.. 37 0
SALEP	per cwt.	240 0	.. 300 0	0 0	.. 0 0		0 0	.. 0 0
SARSAPARILLA, Lima	per lb.	0 6	.. 0 7	0 5	.. 0 7		0 5	.. 0 7
Guayaquil	"	2 2	.. 2 6	1 10	.. 2 2		1 10	.. 2 2
Honduras	"	0 11	.. 1 5	1 1	.. 1 6		1 1	.. 1 6
Jamaica	"	1 2	.. 2 0	2 6	.. 3 0		2 6	.. 3 0
SASSAFRAS	per cwt.	9 0	.. 11 0	0 0	.. 0 0		0 0	.. 0 0
SCAMMONY, Virgin	per lb.	0 0	.. 0 0	24 0	.. 30 0		24 0	.. 30 0
second & ordinary	"	0 0	.. 0 0	6 0	.. 22 0		6 0	.. 22 0
SENA, Bombay	"	0 0	.. 0 0	0 1	.. 0 4		0 1	.. 0 4
Tinnivelly	"	0 1½	.. 1 3	0 2½	.. 2 0		0 2½	.. 2 0
Alexandria	"	0 5	.. 1 6	0 5	.. 2 5		0 5	.. 2 5
SPERMACELE, refined	"	1 4	.. 0 0	1 3	.. 1 4		1 3	.. 1 4
American	"	1 3	.. 0 0	1 0	.. 1 1		1 0	.. 1 1
SQUILLS	"	0 2½	.. 0 4	0 1½	.. 0 3½		0 1½	.. 0 3½
UMS.								
AMMONIAC drop .. per cwt.	£ s.		£ s.	£ s.			£ s.	
Imp.	"	1 18	.. 2 6	2 2	.. 2 10		2 2	.. 2 10
bold scraped	"	0 15	.. 1 15	0 15	.. 1 14		0 15	.. 1 14
sorts	"	13 16	.. 14 10	11 0	.. 12 15		11 0	.. 12 15
dark	"	12 0	.. 13 10	9 15	.. 10 15		9 15	.. 10 15
ARABIC, E.I., fine	"	9 10	.. 11 10	6 15	.. 9 10		6 15	.. 9 10
pale picked	"	4 0	.. 8 10	4 0	.. 6 10		4 0	.. 6 10
sorts, md. to fin.	"	2 15	.. 3 3	2 15	.. 3 0		2 15	.. 3 0
garblings	"	2 0	.. 2 14	2 3	.. 2 14		2 3	.. 2 14
TURKEY, pick. gd. to fin.	"	1 5	.. 2 0	1 5	.. 2 0		1 5	.. 2 0
second & inf.	"	5 0	.. 9 0	6 0	.. 9 10		6 0	.. 9 10
in sorts	"	3 0	.. 5 15	3 0	.. 5 15		3 0	.. 5 15
Gedda	"	2 10	.. 3 16	2 10	.. 3 10		2 10	.. 3 10
BARBARY, white	"	1 14	.. 1 19	1 11	.. 1 19		1 11	.. 1 19
brown	"	0 0	.. 0 0	0 0	.. 0 0		0 0	.. 0 0
AUSTRALIAN	"	0 0	.. 0 0	0 10	.. 1 6		0 10	.. 1 6
ASSAFETIDA, cm. to fin.	"	1 19	.. 2 7	1 15	.. 3 0		1 15	.. 3 0
BENJAMIN, 1st & 2nd	"	0 13	.. 3 5	0 18	.. 2 11		0 18	.. 2 11
Sumatra 1st & 2nd	"	20 0	.. 70 0	27 0	.. 45 0		27 0	.. 45 0
3rd	"	6 15	.. 17 0	6 15	.. 11 10		6 15	.. 11 10
COPAL, Angola red	"	2 8	.. 3 10	3 10	.. 5 5		3 10	.. 5 5
Benguella	"	6 0	.. 6 15	6 0	.. 6 15		6 0	.. 6 15
Sierra Leone, per lb.	"	4 0	.. 5 0	4 0	.. 5 0		4 0	.. 5 0
Manilla	per cwt.	0 6½	.. 0 9	0 5	.. 0 11		0 5	.. 0 11
DAMMAR, pale	"	17 6	.. 23 6	15 0	.. 27 0		15 0	.. 27 0
Singapore	"	75 0	.. 79 0	66 0	.. 75 0		66 0	.. 75 0
EUPHORBIA	"	70 0	.. 75 0	65 0	.. 74 0		65 0	.. 74 0
GALBANUM	per lb.	9 0	.. 15 0	9 0	.. 15 0		9 0	.. 15 0
GAMBOGE, pckd. pipe	per cwt.	0 3½	.. 1 0	0 5	.. 1 3		0 5	.. 1 3
GUAIACUM	per lb.	180 0	.. 260 0	200 0	.. 240 0		200 0	.. 240 0
KINO	per cwt.	1 0	.. 2 5	1 3	.. 3 0		1 3	.. 3 0
KOWRIE, rough	"	81 0	.. 85 0	40 0	.. 50 0		40 0	.. 50 0
scraped sorts	"	18 0	.. 43 0	21 0	.. 45 0		21 0	.. 45 0
MASTIC, picked	per lb.	44 0	.. 55 0	47 0	.. 60 0		47 0	.. 60 0
MYRRH, gd. & fine	per cwt.	4 0	.. 5 0	4 0	.. 5 0		4 0	.. 5 0
ord. to fair	"	150 0	.. 200 0	160 0	.. 220 0		160 0	.. 220 0
OLIBANUM, p. drop	"	100 0	.. 150 0	90 0	.. 150 0		90 0	.. 150 0
amber & ylw.	"	46 0	.. 50 0	53 0	.. 56 0		53 0	.. 56 0
garblings	"	38 0	.. 48 0	38 0	.. 52 0		38 0	.. 52 0
BENEGAL	"	12 0	.. 28 0	12 0	.. 28 0		12 0	.. 28 0
SANDARAC	"	60 0	.. 65 0	65 0	.. 67 6		65 0	.. 67 6
SHELLAC, Orange	"	77 6	.. 95 0	95 0	.. 110 0		95 0	.. 110 0
Liver	"	68 0	.. 85 0	72 0	.. 92 0		72 0	.. 92 0
THUS	"	62 0	.. 70 0	65 0	.. 75 0		65 0	.. 75 0
TRAOACANTH, leaf	"	20 0	.. 21 6	20 0	.. 21 6		20 0	.. 21 6
in sorts	"	240 0	.. 400 0	240 0	.. 400 0		240 0	.. 400 0
SLS.								
SEAL, pale	per tun	£ s.	£ s.	£ s.			£ s.	
yellow to tinged	"	32 10	.. 33 0	35 0	.. 0 0		35 0	.. 0 0
brown	"	30 10	.. 32 0	32 0	.. 34 10		32 0	.. 34 10
SPERM	"	28 0	.. 29 0	31 0	.. 31 10		31 0	.. 31 10
BODY	"	72 0	.. 0 0	83 0	.. 84 0		83 0	.. 84 0
.....	"	0 0	.. 0 0	0 0	.. 0 0		0 0	.. 0 0
.....	"	32 0	.. 0 0	38 0	.. 39 0		38 0	.. 39 0

1878.				1877.			
Oils, continued:—							
WHALE, South Sea, pale, per tun	£	s.	to	£	s.	to	£
yellow „	31	0	0	33	0	0	35
brown „	28	0	29	31	0	0	0
East India, Fish „	0	0	0	25	0	0	26
OLIVE, Galipoli...per ton	0	0	0	48	0	0	0
Gloja..... „	0	0	0	48	0	0	0
Levant „	0	0	0	45	10	46	0
Mogador „	0	0	0	0	0	0	0
Spanish „	50	0	0	0	0	0	0
Sicily „	0	0	0	48	0	0	0
COCOANUT, Coch.	48	0	48	41	10	42	0
Ceylon „	39	0	39	37	10	0	0
Mauritius „	39	10	40	32	0	37	10
GROUND NUT AND GINOLELLY:							
Bombay	0	0	0	0	0	0	0
Madras	0	0	0	45	0	0	0
PALM, fine.....	39	0	0	38	10	39	0
LINSEED	26	15	26	29	15	0	0
RAPESEED, English, pale ..	34	5	0	38	10	40	0
brown	32	5	0	36	10	0	0
Foreign, pale ..	0	0	0	39	0	0	0
brown	0	0	0	0	0	0	0
COTTONSEED	31	0	31	32	0	0	0
LARD	43	0	41	55	0	0	0
TALLOW	40	0	44	30	0	54	0
	s.	d.	s.	s.	d.	s.	d.
TURPENTINE, American, cks.	23	0	0	28	0	28	6
French „	0	0	0	0	0	0	0
PETROLEUM, Crude	0	0	0	0	0	0	0
refined, per gall.	0	9½	0 9½	0	11½	0	0
Spirit	0	7½	0 8	0	9½	0	0
SEEDS.							
CANARY.....per qr.	47	0	54	70	0	80	0
CARAWAY, English per cwt.	43	0	45	0	0	0	0
German, &c....	48	0	49	0	0	0	0
CORIANDE	18	0	23	0	0	0	0
HEMP.....per qr.	0	0	0	33	3	35	0
LINSEED, English „	0	0	0	53	0	66	0
Black Sea & Azof ..	0	0	0	0	0	0	0
Calcutta „	49	6	50	0	0	0	0
Bombay „	51	0	52	0	0	0	0
St. Petrsbrg.	0	0	0	56	0	57	6
Mustard, brown, per bshl.	0	0	0	12	0	15	0
white..... „	13	0	16	13	0	16	0
POPPY, East India, per qr.	52	6	0	54	0	0	0
SPICES.							
CASSIA LIGNEA ..per cwt.	39	6	50	52	0	65	0
Vera	22	0	45	22	0	45	0
Buds	56	0	58	72	0	75	0
CINNAMON, Ceylon:							
1st quality	per lb.	1 10	3 1	1 9	3 7		
2nd do.	1 8	2 6	1 6	2 8			
3rd do.	1 5	1 11	1 2	2 3			
Tellicherry	0	0	0	0	0		
CLOVES, Penang	1 7½	1 8	2	2 2			
Amboyna	1 3	1 5	1 5	1 8			
Zanzibar	1 1	1 2	1	1 2			
GINGER, Jam., fine per cwt.	91	0	202	91	0	202	0
Ord. to good	48	0	80	48	0	90	0
African	25	0	26	28	0	30	0
Bengal	20	0	0	23	0	0	0
Malabar	0	0	0	30	0	0	0
Cochin	48	0	135	50	0	115	0
PEPPER, Blk., Malabar, per lb.	0 4½	0 5½	0 4½	0 5½			
Singapore	0 3½	0	0 3½	0			
White Tellicherry ..	0 10	1 4	0 10	1 4			
Cayenne	1 4	3	2	3			
MACE, 1st quality ..	1 11	2 10	2	3			
2nd and inferior ..	1	1 10	0 11	1 11			
NUTMEGS, 78 to 60 to lb.	3 8	4 6	3 8	4 6			
90 to 80 „	2 8	3 7	3	3 7			
132 to 95 „	1 10	2 10	2 2	2 11			
PIMENTA	0 4	0 4½	0 4	0 0			
VARIOUS PRODUCTS.							
COCHINEAL—							
Honduras, black ..per lb.	2	2	2	2	2	2	2
„ silver ..	2	0	2	2	1	2	6
„ pasty ..	1	10	1	2	3	0	0
Mexican, black....	2	0	2	2	5	2	8
„ silver....	1	11	0	2	3	2	4
Teneriffe, black ..	1	11	2	2	6	3	3
„ silver ..	1	11	2	2	5	2	7
SOAP, Castile.....per cwt.	26	0	33	33	0	34	10
SOY, China	2	7	0	1	7	0	0
SPONGE, Turk. fin. pkd prlb.	0	0	0	12	0	16	0
Fair to good „	0	0	0	4	0	11	0
Ordinary ..	0	0	0	1	0	3	0
Bahama	0	0	0	0	6	3	0
TERRA JAPONICA—							
Gambier	per cwt.	16	6	20	6	20	9
Free cubes	25	0	26	6	23	0	30
Cutch	23	0	24	6	24	0	26
WOOD, DYE, Bar ..per ton	£3	0	£3	5	£3	0	8 2/6
Brazil	14	0	20	0	15	0	20
Cam..... „	22	0	34	0	18	0	20
Fustic, Cuba	0	0	0	0	8	0	8
Jamaica	5	0	5	10	5	10	6
Logwood, Campeachy, „	8	5	9	0	9	0	9
Honduras	6	10	6	15	6	10	6
St. Domingo	4	7/6	6	0	5	10	6
Jamaica	5	0	5	10	5	10	6
LIMA, first pile	9	10	10	0	9	0	10
RED SANDERS	5	17/6	6	0	6	0	6



Counter Practice.—Mr. H. C. Wordsworth, of Sloane Street, sends us the subjoined extract from the *Lancet* of October 17, 1829, to show that the leading medical journal of that day acknowledged the perfect right of chemists and druggists to prescribe. Of course many similar expressions of opinion could be dug out from the medical journals, as the opinion here expressed was never doubted till a year or two ago, but this one is interesting as showing how clearly the meaning of the saving clause in the Apothecaries Act was apprehended at a period within easy distance of the time when that Act was passed. The extract runs thus:—

"For the information of those persons who believe that chemists and druggists are not legally empowered to prescribe and dispense, we insert the following clause taken from the Apothecaries Act of 1815."

Then follows the now disputed 28th section of the Apothecaries Act.

Gold Solution.—To a drachm of solution of terchloride gold add two ounces of ether, and shake together. Polished steel articles immersed in this clear liquor will become covered with a thin film of gold.

Mr. White.—Formula for incense.—If yours "does not give satisfaction" why not tell us what its composition is that we might be sure of giving you something different. Perhaps one of the subjoined will answer. The first recipe we obtained from a Catholic convent; the second is taken from Carley:—(1). Benzoin and storax, of each 4 ozs.; labdanum and myrrh, of each 6 ozs.; cascarilla, 3 ozs.; oil of cinnamon, 8 minims; oil of lavender and bergamot, of each 20 minims; oil of cloves, 10 minims. Mix and pass through a coarse sieve. (2). Oilanum, 7 parts; benzoin, 2 parts; cascarilla, 1 part.

Mosaic Gold.—Sublime a mixture of 6 parts tin, 3 of mercury, 3 of sal-ammoniac, and $3\frac{1}{2}$ of flowers of sulphur.

Negative Varnish (Weber).—

Best yellow shellac	1 lb.
Alcohol	2 lbs.
Ordinary resin	
Venetian turpentine	1 oz.

Filter, and allow to stand to clarify.

Statistics of Tobacco Smoking.—The following table, prepared by the Paris Statistical Society, gives for each country named its consumption of tobacco per annum per 100 inhabitants:—Belgium, 250 kilogrammes; Holland, 200; Germany, 150; Austria, 124.5; Norway, 102.5; Denmark, 100; Hungary, 94; Russia, 83.3; France, 81; England, 62; Italy, 57; Spain, 49; Sweden, 34 kilogrammes.

Bitters.—

Dried orange and lemon peel, of each	ij.
Fresh orange and lemon peel, of each	3iij.
Good brandy	Cj.
Lump sugar	1 lb.

Digest the peel in the brandy ten days, press, filter, and add the sugar.

S. I. S.—The cholera mixture recommended by the Board of Health is made as follows:—Aromatic powder, 3 drms.; sp. sal. volatile, 3 drms.; tinct. catechu, 10 drms.; compound tinct. of cardamoms, 6 drms.; tinct. of opium, 1 drms.; chalk mixture to make 20 ozs. Dose, 1 oz. for an adult; $\frac{1}{2}$ oz. for a child 12 years old; $\frac{1}{4}$ oz. for 7 years old after each liquid motion.

Scarlet Ink.—Best larnacin, 1 oz., is digested with liq. am. I oz. 1 pint of cold distilled water added, the whole triturated in a mortar, and half an ounce of gum Arabic added.—*Chem. News.*

Freezing Compound.—Mix 9 parts phosphate of soda, 6 parts nitrate of ammonia, and 4 parts dilute nitric acid. This is a compound which will cause a fall in temperature of 71° Fahr.

"Syrup."—An American authority gives the following form for fruit syrups that will not ferment:—

Pure fruit juice	16 fl. ozs.
Diluted acetic acid	1 fl. oz.
Water	7 fl. ozs.
Granulated sugar	3 lbs.

Mix and agitate frequently during several days until the sugar is dissolved, using no heat. Keep in air-tight vessels in a cool cellar. Fruit syrups can also be made by mixing the artificial essences, which can be obtained from the wholesale houses, with simple syrup. We do not know if either of these forms will meet your approval. We cannot say how syrups are made by "Beckett, of Heywood." If you think his articles cannot be surpassed, you had better communicate with him. If you are not of this opinion, why not experiment and make your syrups as celebrated as those you name?

Bunkum writes:—"Will you be good enough to furnish me with a method for ninking a hair restorer, without sulphur or sediment, for changing the colour to a brown or black, according to the quantity applied to the hair." We confess our inability, and hand the query over to our readers. We do not know of any combination to answer all these requirements, unless walnut pomade will answer the purpose.

Balneum Baretginense.—

	Oz.
Crystallised sulphuret of sodium	$3\frac{1}{2}$
Chloride of sodium	1 $\frac{1}{2}$
Gelatine, dissolved	4
Water	q. s.

Salad.—The following recipe for salad dressing we obtained from Italy. It is much used there; and also by the French middle classes, by whom it is preferred, as being less rich than the pure Mayonnaise, and easier to make:—Yolk of one egg, 6 tablespoonfuls of oil, 3 or vinegar, put in a bottle and shaken for about ten minutes, or till a white creamy-looking mixture is obtained. The quantity of oil or vinegar may be varied, and white wine vinegar should be always employed. A frequent mistake of amateur cooks is not to sufficiently dry the salad after washing. The little wire basket, so common on the continent, for shaking out the superfluous water, answers much better than the ordinary cloth.

T. II.—Cocoanut oil is chiefly used in soap making. Soap made with it is soluble in sea-water. Refined cotton-seed oil is largely used in the preparation of woollen cloth and morocco leather in oiling machinery, and in mixing with or adulterating olive oil. Lard oil is used for burning and lubricating machinery.

Harness Blacking.—

Isinglass	$\frac{1}{2}$ oz.
Indigo in fine powder	$\frac{1}{2}$ oz.
Soft soap	4 ozs.
Glue	5 ozs.
Logwood	4 ozs.
Vinegar	2 pints
Ground drop black	$\frac{1}{2}$ oz.

Infuse the logwood in vinegar for some time with gentle heat; strain and add the other ingredients; boil until the glue is dissolved, then put into jars.

B.—Poisonous fly-paper, such as Papier Moure, may be made by saturating unsized paper with a strong solution of white arsenic (about 1 drachm to pint) sweetened with sugar or treacle, and drying. For use, lay it on a plate and moisten.

H. W. D.—On page 82, column 2, paragraph 2, of our February number we gave some formulae for ink for endorsing stamps; these may perhaps meet your wants. A practical paper on suppositories is printed at page 10 of our last year's volume. The chief points to observe are to have theobroma oil at a temperature of about 135°, breathe into the moulds, cover them with a thin film of moisture, and then fill them with the fat. Full directions will be found at the above reference. We will endeavour to obtain the address of a field club in the South of London.

Janitor.—If in the firm of A & B, A only is a pharmaceutical chemist, they cannot use the title "A & B, Pharmaceutical Chemists." B, at a low rate, would be liable to prosecution.

Charcoal Pencils (Bretonnais).—

	Parts
Light powdered charcoal	20
Nitrate of potash	1 $\frac{1}{2}$
Gum tragacanth	5
Water	24

Make a pilular mass, to be divided into cylinders.—*Journ. de Pharm.*

Lime Juice.—1. By heating Epsom salts you will drive off the water of crystallisation, but will not otherwise decompose it. As it contains nearly 50 per cent. of water, the dried salt will be almost twice as strong relatively in a medicinal sense. 2. You can get metallic capsules for covering bottles from Messrs. Erhardt & Co., Bond Court, Walbrook, or from any of the druggists' sundriesmen. 3. We think you would have a perfect legal right to put up "Imperial Saline," so long as you did not imitate the style of label, &c., adopted by any other of the makers of salines to such a degree as to make your preparation a colourable imitation of theirs.

Bicycle Rider.—Steel which has rusted can be cleaned by brushing with a paste composed of $\frac{1}{2}$ oz. cyanide potassium, $\frac{1}{2}$ oz. Castile soap, 1 oz. whiting, and water sufficient to form a paste. The steel should first be washed with a solution of $\frac{1}{2}$ oz. cyanide potassium in 2 ozs. water. To preserve steel from rusting, a good method is to paint it with melted caoutchouc, to which some oil has been added. The caoutchouc must be melted in a close vessel, to prevent it burning, and should be frequently stirred. It is also said that dipping the steel in a solution of common salt (about 1 in 4) will preserve it from rusting.

